THE DENTAL DIGEST

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GEORGE WOOD CLAPP, D.D.S., Editor

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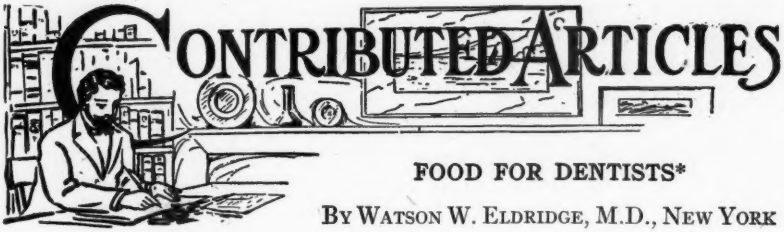

FOOD FOR DENTISTS*

BY WATSON W. ELDRIDGE, M.D., NEW YORK

I've recently learned, by practical experience, that wonderful benefit results from a course of diet which does away with constipation. So great has been my own benefit, that I'd like to have all understand the relations between constipation and ill health, and then between correction of the trouble and joy in living, so I got Dr. Eldridge to prepare these articles. Compare the story told in this one with some of your own experiences.—EDITOR.

EFFECT OF CONSTIPATION ON THE NERVOUS SYSTEM AND THE MENTALITY

SECOND PAPER

Of all the abnormal conditions which afflict mankind by their occurrence in the human body, probably none receives as little thoughtful attention by the individual, as chronic constipation. One would suppose, that, in view of the many lamentable conditions which are secondary to, and superimposed on, this primary condition, the subject would receive more interested attention from the public in general. It is probably due to ignorance of the consequences that leads most of us to neglect the primarily simple condition of constipation until after the almost disastrous results have become apparent.

*Continued from March Digest

I have shown in a previous article how easily the vicious cycle of constipation may become established by being induced through sedentary habits and I gave the prophylaxis of this condition.

SOME RESULTS OF CONSTIPATION

We now have to consider some of the *results* of a well established chronic intestinal stasis, and in this paper only those relating to the nervous system will be discussed. These run all the way from a simple mental stupidity, to epilepsy and include loss of concentration, loss of intellectual productive ability, various manifestations of hysteria, chorea (of which St. Vitus' dance is one manifestation), neuritis, myalgia, (pain in the muscles, of which intercostal neuralgia is a specimen), sciatica, lumbago, and mental obsessions.

PROCESS, CONNECTING CAUSE AND RESULT

To the layman it is a far cry from constipation to epilepsy or lumbago but let us see "the wheels go round," and observe the connection.

Beside the digestion produced by the enzymes of the stomach and intestines there occurs in every man a digestion brought about by the action of the bacteria which normally live and thrive in the digestive tract. These bacteria are useful and necessary, inasmuch as they are the only means the human organism possesses with which to produce *complete* digestion. The digestive juices and enzymes excreted by the various glands along the alimentary tract carry the digestive process to a certain point only, and were it not for the presence of the bacteria in the lower parts of the canal a large amount of nutritive material would be wasted. It is even doubtful if life could be long sustained on the amount of nutritive material absorbed from the products of the enzyme, digestion alone. There are bacilli which convert starches into sugar, others which emulsify fats, still others which transform albumin into peptones, etc. The action of the microbes is, however, not limited to that; in contradistinction to the gastric and intestinal enzymes, it goes much farther in the splitting of the albuminous molecule and finally we have, as a by-production, such toxic substances as the leucomaines, neurin, and muscarin, and the ptomaines, cadaverin and putrescin, and many others. As Combe says "—the microbes intervene actively in all the digestive processes, but beside their undeniably useful rôle it is also undeniable that their action transforms the digestive canal even in the normal state into a receptacle and constant laboratory of poisons." Under normal conditions these poisons are taken care of by the body's defense organization which consists of three separate systems, i. e., the intestinal mucosa, the liver, and the various glands of internal secretion.

These are all conceded to have an antitoxic function and the exercise of this function prevents the intestinal toxins from producing their harmful influence on the body organism, *when these toxins are produced in moderate and normal amount only.* In constipation, these toxic bodies are present in excessive amounts. Not only is the toxic material which should have been evacuated, retained, but this very retention provides a splendid media in which the bacteria are stimulated to increased activity and greater amounts of toxins are produced to be added to these already present. When this process has developed to a certain point the anti-

He has become very irritable, is easily angered; and anything but a pleasant companion to those associated with him in his work

toxic function of the intestinal lining, or mucosa, is overwhelmed and the poisons are absorbed into the portal circulation. The liver then soon becomes surcharged with the toxins and, after a certain enlargement due to its effort to stem the tide of toxic material, its function in turn becomes weakened, and is defeated in the fight to prevent the passage of these bodies, and they escape into the general circulation. The antitoxic bodies in the bloodstream, which have been provided by the glands of internal secretion (thyroid, suprarenals, etc.), now take up the battle and for awhile the onward march of the toxins is arrested, but sooner or later the antibodies are in their turn overwhelmed and the individual then develops a true toxemia, either acute or chronic, but

usually the latter, because the defensive system keeps up the fight and succeeds in nine cases out of ten in preventing such a profound toxemia that the patient becomes acutely ill.

Now the question arises as to what effect on the body organism is produced by the presence in the blood stream of these toxic materials? It has been shown that with their other detrimental activities they attack not only the peripheral nerves but the nerve centres as well. The sequence, severity, and character of the nervous symptomatology produced is directly dependent respectively, on the time the toxin attacks a particular site, the virulence of the toxin itself, and the part of the nervous system attacked. Affections of the peripheral nerves and nerve terminations produce neuritis, muscular pains and perversions of the sensory nerves, lumbago, and may induce skin lesions such as herpes zoster or "shingles" (eruption along the course of a nerve). If the nerve trunks are affected, sciatica, neuralgia, headaches, and their similitudes may result; while more deep seated attacks, delivered at the nerve centres, may produce paralyses of various sorts, pseudo-epilepsy, and last but by no means least, mental disturbances may result and we see apprehensions, obsessions, melancholia, loss of concentration, changes in character and characteristics and psychic disorders too numerous to mention.

TYPICAL HISTORY OF A "NERVOUS" CASE

Let me quote you a typical case history of one of the so-called nervous patients. He complains of not having felt well for some time, but without any idea as to the cause of the trouble. He has grown pale and listless. Appetite is poor and he has some headache and vertigo. He may have had "sinking spells" in which he actually lost consciousness or felt that he was going to. He has become very irritable and sullen, is easily angered and his character may have changed from that of an optimist to that of a pessimist. He has spells of melancholia, and is troubled alternately with insomnia and lethargy. He may have had no apparent symptoms of indigestion and will tell the physician his stomach is all right. Close questioning *may* elicit the information that he sometimes has spells of belching after meals and may pass quantities of gas by rectum. He has reached the point where he can no longer do a full day's work at the office, due to mental and physical exhaustion which follows a comparatively small amount of work. He cannot concentrate his mind on the details of his business and he has become anything but a pleasant companion to his family and those associated with him in his work. He has probably been "constipated, off and on" for several months or years but he "always takes a dose of salts" or some

patent cathartic pill which "fixes it up all right" so that he has "no trouble that way."

INCORRECT DIAGNOSIS

The diversity and multitude of symptoms enumerated by this complaining and grouchy patient will give the physician much embarrassment in forming a diagnosis. All the organic systems seem to be involved except the digestive system, but it is this very multiplied and diversified

The patient becomes actually ill

quantity of symptoms that should lead to an investigation of the digestive tract. From the ignorant or too busy physician the patient will be told that it is because he has a nervous constitution and will be advised not to worry over it. It is just this sort of case that should receive the closest attention. The stools, urine and stomach contents should be carefully examined. The physician should question the patient in great detail so as to bring out history points which the patient may have overlooked. Careful methods of examination will usually reveal constipation to be the cause of these numerous and diverse symptoms and the patient who supposed he would be afflicted the rest of his life, owing to a "nervous constitution," will be far on the road toward relief.

To be continued

WHY DISCARD THE TOOTH BRUSH? IT CAN BE EASILY STERILIZED

By Ernest C. Dye, A.B., D.D.S., Greenville, S. C.

I suppose the best possible comment I can make on this article is that after reading it I threw away all the tooth brushes in my family and provided each member with a glass jar containing a little formalin. Now, when I look at them, I feel that we are not unnecessarily and carelessly adding to the collection of germs already in our mouths.—Editor.

"More than a million organisms have been found by bacteriologists on the bristles of eight out of twelve tooth brushes, after they had been once used. A number comparable with that found in sewage." This statement so alarmed Dr. Bernard Feldman of N. J. that he advocates discarding the tooth brush and giving us as its substitute "The clean forefinger" which is a custom of semi-civilized and barbarous nations.

Is it not strange that Dr. Feldman should accept the statements and experiments of these bacteriologists and then reject their remedy without any consideration? Does his substitute better conditions?

Here follows the article from which the good Doctor quotes in his "Menance of the Tooth Brush":—

"Recent experiments show that the great majority of tooth brushes are in a disgusting stage of uncleanliness and so ladened with germs that they are capable of spreading all sorts of disease. A brief ablution under the tap or in a tumbler after using is all the cleansing the average tooth brush ever receives and this is totally inadequate to render it reasonably clean. In these experiments each of twelve sterile brushes was once used, rinsed ten times in a tumbler of water and after standing twelve hours all the bristles were removed with sterile forceps and examined for germs. In eight out of twelve cases, more than a million organisms were found, a number comparable with that found in sewage. The brushes examined had been used by persons suffering from diseases of the teeth and gums. But four brushes used by persons with apparently healthy mouths revealed almost as large a number of bacteria. Antiseptic powders and pastes are helpful in keeping brushes clean; but even they are not sufficient.

"Experiments with seven such preparations showed that there was an appreciable reduction in the number of organisms, with two others there was practically no change, while with three others there was no appreciable improvement.

"What makes the tooth brush particularly dangerous is that each bristle point acts as an inoculating needle in carrying the microbes

into the delicate membranes of the gums. As the brush should be used at least twice a day, the gums get no chance to throw off one infection before another is forced upon them. Dr. Ernest C. Dye of Greenville, S. C., has invented a tooth brush with a hollow handle to meet these difficulties. As soon as the brush has been used the bristle end is unscrewed and stuck into the hollow handle. In the inside of the handle a few drops of formaldehyde or some other powerful disinfectant are kept. The fumes of the disinfectant sterilize the brush before the next use. The same results may be obtained by keeping the ordinary tooth brush in a wide necked bottle or fruit jar or any receptacle which can hold the brush and a few drops of sterilizer. It must be air tight."

This article was written by Drs. Smale and Jones of London, England. The former a dentist, the latter a bacteriologist in the employ of the British Government. It first appeared in the *Star* Co. of London, copied in this country by the New York *Sunday American*, Dec. 6, 1914, and then by various papers throughout the United States and Canada.

Why discard the tooth brush? Let us ask the following questions. Which would be the easier task, to teach the public to unlearn something that it is accustomed to, and adopt a measure which is novel, or to improve that which it now has? We rather think the latter plan more feasible; therefore let us sterilize the tooth brush.

The medical profession has taught the necessity of precaution and sanitation, and as the result of this we are "screening" against the insidious mosquito and the house-fly. Civic authorities are most careful in the inspection of "backyards" and places that breed germs and disease. The "public drinking cup" is no longer tolerated, thus a "consciousness" has been created which demands sanitation and sterilization.

Drs. Smale and Jones have shown that the bristles of septic tooth brushes act as inoculating needles, and that the germs found on them will produce disease. They are the authors of the following article:

"Bacteriology of Tooth Brushes" (*British Medical Journal* 1910): "It is claimed by Smale and Jones that a tooth brush becomes septic after one using. Each hair becomes an inoculating needle and the person using it may be vaccinated with such germs as flourish on it. The tooth brush therefore, as popularly used by the ignorant for many months; may be the origin of pyorrhoea alveolaris, gastritis, and arthritis. The prevalent tooth powders and tooth pastes as commonly used do not render the tooth brush aseptic and even a solution of 1 in 20 carbolic acid is not effectual. The authorities insist that all tooth brushes should be boiled for five minutes before and after use. A new tooth brush can be used each day. Those wishing for a more prolonged use of a tooth

brush can rinse the brush in tricresol (1 per cent.) or allow it to stand between use in formalin (10 per cent.).

"A tooth brush sterilizer can be made very readily with practically no expense, even by the uninitiated.

"All that is needed is 'a wide necked bottle or a fruit jar,' place in it a few drops of formaldehyde on cotton. Now the tooth brush, and cork up air tight. In less than an hour's time all organisms will have been killed. The brush is put into the sterilizer while it is damp.

"The writer has used such a sterilizer for three years, with good results; there is no injury to the handle, nor the bristles of the brush (as claimed by Dr. Feldman, bone and celluloid handled brushes being used). Neither is there any injury to the teeth nor the soft tissues. The brush is held under the tap or rinsed in a glass of water before using."

"An Aseptic Tooth Brush" (*British Medical Journal* 1913). "In 1910 Dr. D. W. Carmalt Jones and Mr. Herbert Smale read a joint paper before the British Medical Association on some points of the 'Bacteriology of Tooth Brushes' in which they advocated the sterilization of those articles, because it appeared to them that even in an infected cavity such as the mouth, it was preferable that an instrument, which is so used that it may scarify the gums, should not convey any additional organisms directly into the wound. This appears to have attracted some attention in America, and Dr. Carmalt Jones and Mr. Smale informs us that an American dentist, Dr. Ernest C. Dye of Greenville, S. C., has devised a tooth brush, which is efficiently sterilized by formalin vapor. It consists of a cylinder closed at one end by a hemispherical cap, which contains wool soaked in formalin and kept in place by wire gauze; the other end carries the brush which is screwed on for use and after use is reversed and screwed inside the cylinder, where it is exposed to the formalin vapor and rendered sterile. A more practical modification, is they consider, the use of a long cylinder in which an ordinary tooth brush is damp when put into the cylinder and all ordinary mouth organisms are killed."

Further experiments were carried on by Dr. Wm. Litterer, A. M., Ph.C. M.D., Bacteriologist of Vanderbilt University, also for the State of Tennessee (See May 1913 and May 1915 issues of *Items of Interest*). The following were the results obtained:—

"The results of my experiments with your aseptic tooth brush are as follows:—

"Experiments were made with full strength of formalin (formaldehyde gas 40 per cent. in water). I used the following bacteria to test the germicidal power:

"1. Streptococcus pyogenes.
"2. Staphylococcus pyogenes aureus.
"3. Bacillus typhosus.
"4. Pneumococcus.
"The following method was employed:—

The brush was rendered sterile by superheated steam (Auto Clave). The brush was dipped into a pure culture of (1) Streptococcus pyogenes, and was then returned to the receptacle to be acted upon by the formaldehyde gas. All of the above germs were treated in like manner and in every instance double controls used. Both positive and negative controls. The result was that complete sterilization was effective in less than an hour's time. By drying the brush with the bacteria adhering to it the effectiveness of the sterilization was greatly impaired. The above results were obtained by using only the full strength formalin. No dilutions were used. The question as to whether it would be too irritating to the gums can be answered in the negative, if the brush was rinsed in water before using. The method appears to be a very effective and unique way of sterilizing a tooth brush and in my opinion should be seriously considered by the dental profession."

It is to be hoped that this discussion of the unsanitary condition of the tooth brush will be continued until the dental profession takes a stand for the "sterilized tooth brush."

The immortal Miller a generation ago proved conclusively that the mouth contains hosts of germs and that they are capable of producing decay and disease. Will not this generation go a step farther and demand that the instrument with which we brush our teeth and gums "shall be clean?"

Can the dental profession take the "next step" that Dr. Mayo speaks of and leave the tooth brush in its present filthy condition?

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DENTAL HYGIENISTS

By Edward F. Brown

Secretary, Dental Group, Advisory Council Committee on Child Hygiene, New York City Health Department

A monograph of the Department of Health of the City of New York states that it is safe to assume that not less than ninety per centum (832,500) of school children of the city are in need of dental treatment.

It may be said that this situation is due to imperfect tooth structure, the causes of which lie partly at least in prenatal mal-hygiene, improper feeding of children, lack of cleansing and neglect to prevent progressive decay by early professional treatment.

The insidious character of tooth decay and disease is becoming increasingly apparent from the scientific relationships being drawn between mal-hygiene and disease.

There are hardly enough licensed dentists to repair the dental ills of the school population alone.

This situation, engaging the attention of school hygienists, has directed attention to new means of attacking this problem.

It was apparent that little was to be expected from curative channels in any effective programme of action. Prevention is the keynote of modern health work. Inasmuch as the prophylactic principles of dentistry are defined, it was patent that the solution lay in this direction.

For some time Dr. Alfred C. Fones of Bridgeport had been successfully experimenting in the use of so-called "dental hygienists" or specially trained women who give surface treatment to the teeth of school children.

Last spring Dr. Philip Van Ingen, chairman of the Committee on Child Hygiene of the Advisory Council of the Health Department of New York, in conference with the Health Commissioner, appointed the following members of the Advisory Council of the Department a committee to study, report and recommend as to the desirability of utilizing dental hygienists in New York: Dr. Herbert L. Wheeler, Chairman, Dr. M. L. Rhein, Dr. Homer C. Croscup, Dr. Arthur H. Merritt, Dr. Henry C. Ferris, and Edward F. Brown of the Bureau of Welfare of School Children, Association for Improving the Condition of the Poor, as Secretary.

The Committee held a number of meetings, and on February 8, 1916, submitted the following unanimously:

"The sub-committee on dental hygienists held three meetings, at which time the question of dental hygienists was thoroughly discussed.

The committee now begs leave respectfully to report that a trial of surface cleansing of teeth of school children with accompanying instruction in oral hygiene be commenced at the earliest possible moment in one or more centres, preferably public schools, provided that the work be done by specially and adequately trained persons and under the supervision of competent directors."

On February 17, 1916, the whole Committee on Child Hygiene of the Advisory Council ratified the report and recommendations of the sub-committee.

Dr. Haven Emerson, Commissioner of Health, has evidenced the keenest interest in this work and it appears probable that at an early date some nurses will be assigned to this work.

At one time there appeared to be some question as to the legality of employing dental hygienists. The question was submitted to the Corporation Counsel by the Health Commissioner who reported that there is nothing in the dental law to prevent the use of dental hygienists.

In order, however, to avoid any possibility of untrained persons entering upon the work without proper safeguards to prevent fraud, inefficiency and exploitation, the legislature passed a bill (Senate Bill No. 391) which has just been signed by Governor Whitman, the provisions of which on this subject are as follows:

"Any dental dispensary or infirmary legally incorporated and registered by the regents, and maintaining a proper standard and equipment may establish for women students a course of study in oral hygiene. All such students upon entrance shall present evidence of attendance of one year in high schools and may be graduated in one year as dental hygienists, upon complying with the preliminary requirements to examination by the board, which are:

A. A fee of five dollars.

B. Evidence that they are at least twenty years of age and of good moral character.

C. That they have complied with and fulfilled the preliminary and professional requirements and the requirements of the statute.

After having satisfactorily passed such examination they shall be registered and licensed as dental hygienists by the regents under such rules as the regents shall prescribe.

Any licensed dentist, public institution or school authorities may employ such licensed and registered dental hygienists. Such dental hygienists may remove lime deposits, accretions and stains from the exposed surfaces of the teeth, but shall not perform any other operation on the teeth or tissues of the mouth. They may operate in the office of any licensed dentist, or in any public institution or in the schools under

the general direction or supervision of a licensed dentist, but nothing herein shall be construed as authorizing any dental hygienist performing any operation in the mouth without supervision. The regents may revoke the license of any licensed dentist who shall permit any dental hygienist operating under his supervision to perform any operation other than that permitted under the provisions of this section."

This law follows the enactment of similar ones in Massachusetts and Connecticut. With these progressive steps taken, it is to be hoped that through prevention we will preclude the possibility of another generation of children growing up, 90 per cent. of whom will be exposed to the havoc wrought by diseased and rotting teeth.

OUR ANNUAL GOOD FELLOWSHIP DINNER, 1916

This is the picture of the Annual Good Fellowship Dinner given at the end of the Clinic and Exhibit of the Marquette Alumni meeting each year. We had some stunts on the stage and as we drank our famous beer we sang our college songs and then flew away like the swallows to meet again next year. DR. ALBERT FRACKELTON.

THE CLINICS AT THE NATIONAL MEETING

For many years the meetings of the National Dental Association were conducted without clinics. It was deemed that the dignity of that body would be lowered by demonstrations by mechanics to show how to do things. The entire time of the sessions was given over to scientific and near-scientific papers and their discussion.

Now the success of all dental meetings, including the National, is measured by the number and character of its clinics as much as, or even more than by the papers that are read.

Hence a foreword anent the clinical programme for the meeting of the National at Louisville in July, will not be without interest.

In the first place, the fact that Dr. Wm. H. G. Logan of Chicago is National Chairman of Clinics gives assurance that this feature will be of the highest order of excellence and that the plan of its conduct will be an example of organization such as he alone is master of.

Though the details are not yet complete, the following may be given out as the frame work of the plan which has practically been decided upon.

On **Wednesday afternoon** from 1:30 to 5, at Keith's Theater (seating capacity 3,000, ventilated with washed and refrigerated air—important items in July) there will be given fifteen-minute lectures illustrated with stereopticon and moving pictures, on subjects of the most vital interest to dental practitioners of to-day, and by men specially selected for their knowledge and their ability to impart it in effective concentrated fifteen-minute doses.

Friday morning at 9:30, and until 12:30, a sectional Progressive Clinic will be conducted in the balcony of the Armory which will present some new and novel features in the way of a progressive clinic. The arrangements will be such that everybody will see every clinic without discomfort or inconvenience.

These clinics are to be given by dentists residing in the district of the National in which Louisville is located and comprises the States of Michigan, Indiana, Kentucky and Tennessee.

There will also be surgical clinics by men of national reputation, at the City Hospital.

Altogether the clinical programme offered at the 1916 meeting of the National Dental Association will be worth a Sabbath day's journey with part of Saturday and Monday if necessary, to come to Louisville in July to see, even if you saw or heard nothing else.

WHY ARE THERE TWO DENTAL PROTECTIVE ASSOCIATIONS?

Since the recent publication of the report of the Dental Protective Association of the United States, the question has been asked many times: "Why are there two dental protective organizations?"

When the Dental Protective Association entered into its agreement with Dr. Taggart, by the terms of which Dr. Taggart agreed to license its members to use the process disclosed in his patents, for the sum of $15, and by which it agreed not to participate in, or contribute to, the defense of any dentist against whom Dr. Taggart might bring suit for infringement of his patents, there was brought about in the dental world a condition which is, in itself, an answer to the above question.

We quote from the article published in various dental journals, which is dated January 3, 1916, which, among other things, sets forth the status of the members of the Dentral Protective Association with reference to the pending Taggart litigation:

"The question is frequently asked: Where does the individual stand, with reference to the pending Taggart litigation, who is a member of this Association in good standing and who did not accept the terms of the agreement with Dr. Taggart before the time limit expired? In reply to this important question we will say that every member was notified individually and through the dental journals, not once but several times, of the opportunity afforded by the terms of the agreement; and those who did not accept *forfeited their rights to protection from this source, by this association.* They are hereby notified that they may either settle direct with Dr. Taggart or MAKE WHATEVER OTHER ARRANGEMENTS THEY SEE FIT TO PROTECT THEMSELVES FROM THE TAGGART PATENTS."

The last sentence in the above quoted paragraph is the main reason and answer for the second dental protective organization.

After the agreement with Dr. Taggart was effected by the Dental Protective Association, and after the dentists of the country had been given a suitable opportunity to avail themselves of its privileges, if they so desired, and the time in which they might do so had elapsed, Dr. Taggart commenced a campaign to collect money.

Using round figures, about 10 per cent. of the dentists of the country availed themselves of the opportunity afforded by the Dental Protective Association, and the other 90 per cent. did not. There were just two things which this 90 per cent. might do: the one, to submit and pay; the other, to organize and test out the validity of the Taggart patents.

A group of Chicago Dentists decided to adopt the latter course, and

at a meeting held at the Grand Pacific Hotel in June, of 1914, The Dentists' Mutual Protective Alliance came into being.

The purpose of the Dentists' Mutual Protective Alliance is the protection of its members against process patent exploitation. While the immediate work in hand is the Taggart litigation, yet its real purpose is to be in the field, big and strong and ready to defend the dental profession against all those who have unadjudicated process patents to exploit. This position is assured by the provisions of its By-laws, which reads as follows: "No process patent shall be compromised."

Immediately after organization, the management of the Dentists' Mutual Protective Alliance took up the work of testing the validity of the Taggart patents. In this connection it may not be understood by all dentists just how or just what must be proven to invalidate a patent. When a patent is granted by the United States Patent Office, it is assumed that whatever is claimed therein, is new or novel. If it can be proven beyond a reasonable doubt that whatever is claimed therein as new or novel was in use more than two years prior to the date of the patent, the patent falls.

The work of the Alliance has been to show that the processes disclosed in Dr. Taggart's patents, were in use more than two years prior to the date of his patents, or prior to 1905. To this end the case has been twenty days in Court; the attorneys of the Alliance have visited most of the states of the Union from Pennsylvania to Arizona, getting together evidence; while the trial was in progress last June, they had more than 120 people in attendance, either directly or indirectly, as witnesses.

The trial lasted well into July, when it became apparent to the Court that the end was a long way off, and he, therefore, adjourned the case until the Fall Term, subject to call. During the winter there have been several days of argument on motions, and the like, and it is probable that the main case will be called at an early date.

The present case is what is known as a test case, and an Appellate Court decision in the pending litigation will be, in effect, binding throughout the United States. Should Dr. Taggart be successful in this litigation, the question to those who do not have Taggart licenses, will be: "How much do you owe Dr. Taggart?" On the other hand, if the Alliance is successful, the Taggart patents fall.

This is said to be the largest and most important piece of dental patent litigation that was ever before a Federal Court for adjudication. The Dentists' Mutual Protective Alliance is the only organization in the field in a position to take the part of 90 per cent. of the dentists of the country in that litigation. This would seem to be a sufficient reason for the second dental organization.

CLOSED MOUTH IMPRESSIONS*

By Samuel G. Supplee, New York, N. Y.

FOURTH PAPER

PROPER USE OF THE BUNSEN BURNER

A Bunsen flame presents three distinct temperatures.

The tip of the flame is the hottest part; and if it is brought directly into contact with the modelling compound, it will cause the surface to sizzle or bubble.

The middle of the flame is what might be termed medium warm; compound passed a little way into the side of the flame will be heated slowly, and to a uniform consistency by moving it back and forth.

The base of the flame is the coolest part. The material can be passed into this part of the flame more slowly without danger of bubbles and blisters, and the heat will be transmitted to a greater depth without causing the surface to flow.

Each one of these three distinct temperatures, properly applied, is of great value to the operator.

THE PROPER SIZE OF FLAME

A small Bunsen like the one attached to the Supplee outfit illustrated in the March issue should be used.

The Supplee Bunsen has a little cock attached to the frame to regulate the exact height of the flame.

The flame should be a clear blue, and should not be over one inch from the mouth of the burner to the tip of the flame.

A flame of greater volume will not be so easily controlled. Many impressions are spoiled when the attempt is made to transform them from an impression with the mouth open to one with the mouth closed, by using too large a flame and by permitting the flame to glance so that it will heat a portion of the impression that it is desirable not to change.

PREVENTING THE COMPOUND ADHERING TO THE FINGERS

As compound cools from the surface and is exceedingly sticky when in a flowing state, the Supplee heating apparatus is so designed that the hot and cold water pans are close together, and a glass spatula is furnished for raising the compound from the bottom of the heater pan when in a semi-flowing state.

It is vital that the spatula with the compound be quickly *immersed*

*This article began in the January, 1916, number

in cold water and the fingers must be wet before an attempt is made to remove the compound from the spatula. Otherwise, one will have considerable trouble with the material sticking to the fingers.

If the water in which the compound is heated is hotter than 170 degrees, the compound will become very sticky and will adhere to fingers even if they are wet. It is well to cool it before proceeding, as this will save time.

This stickiness can be avoided by letting the compound lie in water at 160° for five or ten minutes.

In taking compound from hot water always reach to the bottom of the pan and scoop up the compound on the end of the glass spatula. Then with two or three deft turns of the spatula, lift out enough compound for an impression and give it a quick dip into the cold water pan before attempting to remove the compound from the spatula with wet fingers.

The thin film of hardened surface compound will not be sticky. By slightly kneading the material, this film is dissolved and will become of the same consistency as the rest of the mass.

Avoid touching compound that has been heated over the flame with either dry or wet fingers. Dip it in water first, but *avoid permitting the impression tray* to come in contact with the hot water, as aluminum absorbs the heat rapidly.

An impression tray that has lain in water of 165 degrees cannot be inserted in the average mouth without burning the patient or causing discomfort. It will also retard the setting of the compound.

ELIMINATING THE ROCKING OF AN UPPER IMPRESSION

During the manipulation of compound, one may cause an impression to rock.

There are a number of ways to eliminate this condition. The method to be employed must be determined by the case in hand.

Where the ridge is hard and the muscular attachments are definite in their action, heat the surface of the water to about 170 or 175 degrees. Fill a Spooner self-filling syringe with hot water two or three times and empty it so as to thoroughly heat the bulb and metal part. Then fill it with hot water and suspend the impression over the pan heels down and force the water to strike over the centre of the palatal portion and flow to the bottom of the ridge in front and off at both sides for half a minute. Quickly pass into the mouth and gently but firmly place up to position by bringing pressure with the *index finger under the centre of the tray* and have the patient make the face movements. Hold firm until thoroughly set.

If the rock should develop after you have established the biting block, or the plane of occlusion, follow the same technique as already described and place the tray in the mouth and have the patient bite it up to place with a gentle but firm pressure, and make face movements.

Before doing this adjusting, one must be sure that the occlusal surface of the compound biting block is flat and smooth in the molar and bicuspid region. If the opposing cusps are embedded in it to a depth of even half the thickness of a cardboard, it will interfere with the proper correction of the impression.

HOW COMPOUND CAN BE SPOILED

There are many ways in which compound can be spoiled, a few of which are as follows:

First, by over-heating. As soon as compound has lain in boiling water for a few minutes, it will not only lose its quick setting qualities, but when it does set, it will not be hard.

If left lying in water of over 180 degrees for half an hour or more, it will not set quickly or nearly so hard.

Compound should never be used a second time.

When a cast has been poured into a compound impression, the plaster seems to extract or neutralize some of its qualities so that it not only sets slower, but is more difficult to work and will not secure the best results.

Many impressions are failures for this reason alone. They are easily bent and will be changed materially by the lips when taking them out of the mouth.

After compound has lain in water of 120 degrees or more for over five hours, it will lose many of its qualities for quick accurate work.

GLOSSING CASTS

By using a very thin solution of model separating varnish or water-glass and applying it over the surface quickly with a brush, you will give to the cast a smooth surface which is conducive to a better finish on the completed denture.

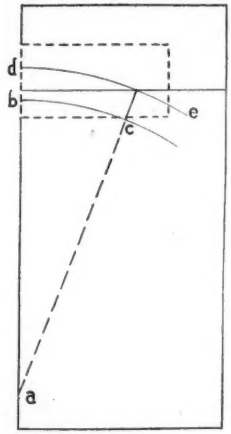
Last, but not least, ice-water or cold air should always be used in cooling compound before taking it out of the mouth, in order that there may be no changes where the margins are thin.

AID IN SOLDERING.—Use the base of an inverted gas mantel as a soldering base. Place it on your asbestos soldering block. The flame will have easy access to all parts of investment, and you will lessen your troubles to *nil*.—NILS JUELL, D.D.S., Minneapolis, Minn.

CAST-CUSP GOLD CROWN

By A. Bruce Coffin, D.D.S., Apache, Okla.

Prepare root in the usual manner, leaving the stump in the shape of a cone or at least with parallel sides; grind off occlusal surface so that there will be a space of at least $1\frac{1}{2}$ mm. between it and the occluding teeth at all positions of the mandible. Make band in the form of a cone after the method of Dr. Prothero which, briefly, is as follows:



Take card-board 5 inches by $2\frac{1}{2}$ inches and near the bottom of the left margin, make another mark (b). Using the lower mark (a) as a centre make the arc of a circle starting from the upper mark (b). To mark gold plate for cutting band, take wire root measurement, cut and bend to conform to the curve of the arc on card and mark the length from (b) on the arc. Place gold plate on the card with the left margin of the gold on the left margin of the card and the lower edge of the plate (if it be a rectangular piece), bisecting the arc at the mark indicating the length of the wire measurement (c). Now with the gold plate held firmly in place mark the arc (c) on the plate; with a straight edge bisecting the (a) and (c) mark end of band; with radius extended the width you wish the band mark second arc on plate (d e).

Fit band to root, contour and set band in place on stump. See that the end of band does not interfere with occlusion. Warm inlay wax and place in occlusal portion of band and have patient bite firmly together. Have patient bite in lateral occlusion and by any possible movement of the mandible bite down wax. Tack wax to band with

hot instrument at several places on the periphery of band but do not touch occlusal portion of wax. Cool wax, remove band with wax in place and pour band full of investment compound. You may now dismiss patient.

When investment is hard, carve occlusal portion of crown in the wax. Do not add wax to the occlusal portion but, of course, wax may be cut away wherever necessary, leaving the original occlusal wax where you wish the crown to come in contact with the occluding tooth. In adding wax, if it becomes necessary, use a color contrasting with the original so that if the occlusion has been interfered with it may be detected. Cast by usual method.

By this method no articulator is needed. It is not necessary to refit the carved wax crown on the tooth—if indeed it were possible to do so without distorting the wax, provided the band was properly fitted. By filling the band with investment compound the wax is prevented from being pushed farther into the band thus interfering with the occlusion and also preventing the cast crown from going to place.

By this method, with acquired skill, a perfect anatomical crown may be made quickly and easily.

PERFECT ARTICULATION IN POSTERIOR BRIDGEWORK BY THE USE OF TRUBYTE MOLAR BLOCKS

R. D. Pray, D.D.S., Sheridan, Oregon

The ideal place for restorations of this character are where the teeth on the same side, both upper and lower, are to be replaced. Any restoration back of the cuspids can be made with the molar blocks. If one or more teeth are to be used, simply cut off the teeth with a separating disk, saving the remaining teeth for some future case. In using the blocks, for work of this character, you will turn out bridgework that is pleasing to the eye and anatomically correct in principle. The time used and the expense will be less than if you had used all gold, and the final result will astonish you. For illustration take two molar blocks, articulate them between the fingers, then look ahead and figure how you can obtain that result on your next case.

There is nothing difficult about using the molar blocks and I believe that the idea has great possibilities for originality in the operator's technique, and the range of use will depend entirely upon the individual's mechanical ability.

METHOD OF PROCEDURE

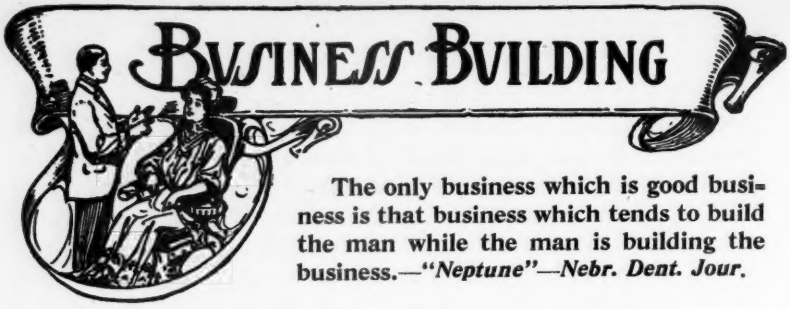
Make your abutments in the regular manner, take your bite and impression and mount on an anatomical articulator. Determine size and shade of blocks to be used. Then grind the ends of block until they fit snugly between abutments, taking care that the articulation is perfect. Now remove blocks and with a small stone cut out the undercuts in the diatoric blocks, then grind the ends that lie next to each abutment at about a 45 degree bevel—which will allow for the strength of backing attachment to crowns. Now soften your inlay wax and press into the back of block, taking care that the wax goes well up into the holes, shape up wax flush with edge of block, or for added strength let wax extend a trifle below edge. Invest wax impression and cast with your scrap gold. This backing can be cast in one piece or in sections as you like—possibly the casting in sections would be easier and more accurate. At the final soldering they will be all joined in one piece.

After the casting operation, smooth the backing until it will go into place easily, then wax all parts into their correct positions on the articulator, remove blocks, invest the case and solder. Polish the work, cement on backings and you have a beautifully finished piece of bridgework with perfect articulation.

When you cut a tooth off the blocks, before laying it aside for future use, make a die and counter die of it so that you can carry out the anatomical feature on the crown abutment that is to take its place.

In using the upper and lower blocks, it will not be necessary to do much grinding as the teeth will be found to articulate perfectly. And in cases where the blocks are to articulate with the natural teeth, you will find that they will articulate easier than any tooth that can be used, and the natural appearance of the case, when finished, will more than compensate you for the care taken.

DISSOLVABLE IMPRESSION PLASTER.—F. Duijvensz recommends a mixture of two parts of potato flour and ten parts of plaster of Paris to make a dissolvable impression plaster. The potato flour must be very dry. The mix is made with cold water to which a pinch of table salt is added. After having been assembled, the impression is coated with a solution of one part of potassium or sodium silicate (waterglass) in three parts of water, and the cast is poured. After the cast has set, the impression is dissolved away in boiling water.—*British Journal of Dental Science.*



The only business which is good business is that business which tends to build the man while the man is building the business.—*"Neptune"—Nebr. Dent. Jour.*

FIFTY-FIFTY

W. F. Davis, D.M.D., New York City

Two or three weeks ago I felt that I needed a little rest from business, and decided that I would visit one of my old classmates, who soon after his graduation had located in a town a couple of hundred miles north of me. I had never heard of his death or removal from the original location and therefore decided that he must have remained there. I thought I would take a chance anyhow, as it was a pleasant section of country and I had never visited it.

Dave Brown was one of the brightest, most capable and most popular members of the class. He was ambitious, full of energy and everybody prophesied a brilliant future for him.

On reaching my destination I readily found Dave's office. It was centrally located, over the post-office. As I entered the office Dave came out from his little laboratory and met me with a questioning "what can-I-do-for-you" look that changed almost instantly to recognition.

"Great Heavens, Tom! You dear old fellow! I can't tell you how glad I am to see you. Sit right down and tell me all about yourself, and the rest of the boys. I've been sort of side-tracked up here and haven't kept in touch with the rest of the class. My, but I'm glad to see you."

We gossiped for an hour or so about old times. I told Dave about myself, where I was located, my business, my family, and my plans for the future. Then I said: "Tell me all about yourself, Dave. How has the world been treating you?"

"Tom, I think a kind Providence sent you to me, to-day. I can unburden my heart to you as I cannot to any other living person. Tom, I'm scared. Of course, you don't know why or what about. I'll tell you. I was 63 years of age last month. I've been practising here 42 years. I am doing work now for the grandchildren of some of my first patients. You know when I graduated, I was considered the best operator in the class. I was fond of operating and proud of my ability. I

was also good in what we then called 'mechanical' dentistry. It's 'prosthetic' now. When I located here I was well equipped to do good work. I was fully determined to do nothing but good work and I have lived up to that determination. I have always given good, conscientious service. Every week I see in the mouths of some of my old patients, gold fillings that I put there fifteen and twenty years ago, and that are still in good condition. I have given the community the very best that was in me. They know it, and appreciate it. The people here in A—

"I'm on the down grade. I'm slipping. My hair is almost white"

like me. They respect me. They trust me and they know they can depend on what I tell them. They ask my advice about many other matters than dentistry. I am really a popular citizen. The voters elect me to some minor town office occasionally, such as school trustee, board of health, and such like. I am quite in demand as an after dinner speaker. I don't know that I have an enemy in town. I sometimes wish I did have some enemies. It would at least show that I had some aggressiveness."

I remarked that what he had told me thus far would seem to indicate that he was ideally located. "It looks so, doesn't it, Tom? I'll show you some of the other side. I'm on the down grade. I'm slipping. My hair is almost white. My eyes are failing me and my hand is a little

unsteady. They call me 'Old Dr. Brown.' And the other day I overheard one lady remark to another. 'Don't you think Dr. Brown is failing?' I *am* failing. I am growing old. When I think of the future I am frightened. I know what you are thinking. You think I had a good practice for all these years and that I have saved some every year and that it is time for me to retire from practice and spend the rest of my life in ease and comfort. That is as it should be. Every dentist should be able to retire at 60. I know it now. I didn't forty years ago, and the knowledge only recently came to me and it has come too late. When I located here the conditions were unusually favorable, and I had a good practice from the very start. It increased until it was as good as any practice in the country. Naturally, I was pleased at my success. I married and raised a family. We lived as well as any family of moderate means in the town. I was very well satisfied with myself. My ambition died an unnatural death. As my children grew older and my expenses increased, my income did not. My practice stood still. It was at flood tide, soon to ebb. Sometimes the thought came to me that my income from it was not as large as it should be, considering the amount of work I did. I know now why I didn't get more money out of my practice. I was careless in charging and careless in collecting. Do you remember how Professor B— used to solemnly warn us students against 'commercializing the profession.' It was a nice, mouth-filling expression, and I really thought it was valuable advice. I tried to follow it, and because I followed it I am a poor man to-day. I have lost thousands of dollars through failure to charge a proper fee, and sometimes because I failed to charge at all. I have lost other thousands through loose methods of collection. I was afraid to offend people by sending them bills too promptly. I sent bills once in six months—many times once a year. People died, moved away, went into bankruptcy, and I lost. If I had been in the habit of sending bills once in 60 days, or certainly every quarter, I should have collected most of this money."

"But, Dave," I interrupted: "Why did you allow yourself to drift along in this manner so long? When you first saw your practice decreasing, why didn't you find out the reason, and get a little system started to stop any further loss?"

"It was that same fallacy about 'Commercializing the profession.' I thought it would not be dignified or professional. And I really did not know just what to do. I have got most of my ideas about 'Business in Dentistry' from my most dangerous competitor. He located here about two years ago. He was right out of college, just as I was when I came here. He is a first-class workman, a nice fellow, dignified, but

always pleasant. We are very good friends, and always have been. He has secured a good many of my old patients, but I know in almost every case he has advised them to remain with me, and has only taken them because they had lost confidence in me on account of my growing old, and would have gone elsewhere if he did not take them. He always speaks highly of me and of my work. I drop into his office quite often and he comes to mine, and we have compared methods and systems. He has some advanced ideas about business in dentistry, and says mine are all wrong. He has the most complete and accurate system of charging. Every operation is charged on the basis of the time taken and the

"I'm starting in on the theory that dentistry should be on a 50-50 basis—fifty professional, and fifty business"

material used. He sends bills the first of every month, and expects to have them paid promptly. Think of that! If I should do such a thing my old patients would think I had lost my mind. I told him so, and sprung that warning about 'Commercializing the profession.' 'That's nine tenths bunk,' said he. 'I have as much regard for my profession as any man, and I wouldn't do anything to disgrace it, but I am not in dentistry strictly for my health. It's my business, and it must give me a living. I give my patients good work, the best service in my power to give. I charge them a reasonable fee for this service, and I expect them to pay, and pay promptly. Why not? My butcher, and my groceryman, and my plumber expect their bills paid promptly the first of every month. Why shouldn't mine be paid as often and as promptly? You're

all wrong, Dr. Brown. You started wrong and I suppose it is too late for you to make a radical change. I'm starting in on the theory that dentistry should be on a '50-50' basis—fifty professional and fifty business. It must not only give me a living for the present, but enable me to put aside something for the future. If it won't do that, I'll quit and take up something that will.' That was a presentation of dentistry from a new point of view, and most especially the '50-50' idea. It's the right point of view, but it has come to me too late. Don't you see that it has, Tom?"

I was puzzled to know what to say, what advice to give, but suggested that there must be some way out.

"If there is, I have failed to discover it, and I have racked my brains to find one," said Dave. "It's useless to raise my prices after all these years. I'd be afraid to do it. I've got to keep up my present mode of living. Any visible attempts at economy would be business suicide. Rats desert a sinking ship, you know. I own a house but it is only partly paid for. I could get along with a smaller, cheaper one, but there you are again confessing failure. I dare not risk it. I know my friends think I am prosperous. They think I don't care to have very much practice; that I am pretty nearly ready to retire. I ought to be, but I can't, Tom, I can't. Can't you understand why I said I was 'scared'. It is pretty nearly a tragedy. Why didn't somebody tell me about that '50-50' idea forty years ago? It would have made just the difference between prosperity and failure."

I had to leave Dave, but I have had a heavy heart whenever I have thought of him and his future. I wonder if there are not many others whose future looks as dark as his, all because they were not taught that dentistry was a business as well as a profession?

THE NECESSITY FOR KEEPING COMPLETE RECORDS

By C. Charles Clark, D.D.S., Kansas City, Mo.

One of the most difficult things for the ordinary professional man to do, is to get his debit and credit records in any sort of shape, and some have not the necessary help to do this many times unpleasant work. When one gets through with a difficult operation, it is easy to allow the making of a record to go over until the next day, so any innovation looking toward simplifying the method of keeping these records will be appreciated.

There are several reasons why you should keep your records so that

they can be understood, not only by you, but by others, in case there arises a dispute as to what was done and what was not done by you.

For instance, it had always been the habit of the writer, until he learned better, to arbitrate his accounts, on any pretext whatever made by the patient, but he found he made no friends by that course of procedure, but on the contrary people considered him easy, so he sought a better way, and found that there were a number of systems, the most common, being one with pictures of teeth. It is true that you can mark black spots on the teeth, but that is in addition to the written record of the charges, and serves no additional purpose.

The record should be so written that when read, it forms a picture in the mind of the patient at once, without further explanation. The teeth pictures occupy a great deal of space, which could be used to better advantage.

Did it ever occur to you that in other dignified callings, they do not use characters to represent the sales? However, they may have some particular code, which is used as a simplification of their written record, which can be explained so that when a disputed account is brought into court, there can be no question of its meaning.

The writer has noted three kinds of accounts, cash, book and notes. Cash is the ideal business, and one that exists in a very few cases; open accounts, the delusion and snare that has caused many a professional man to end his days in penury and want; and the negotiable note, or contract, which will permit you to raise money before its maturity, if you desire.

When it comes to collection of your outstanding indebtedness, a third party can do better for you as a usual thing, and the reason for this is that they have a range of emotions to play on that you can't even mention, and they seldom hesitate to use everything at their command to turn the debits into cash.

And I want to repeat that you should have an understanding with your patient at the earliest possible moment regarding your fees. At that time he is seeking your services, so then is the most opportune moment to arrange for future payment.

When your patient asks you what your work will come to, make him an estimate, computed on whatever system you may use; most of us have a hit or miss system; we claim to charge so much per hour, or perhaps so much a tooth, but I find that some work I am doing at less than five dollars per hour, and other work at as high as twenty-five dollars per hour, so I am trying to see where I can mend this.

It is a fact that for some classes of work the patient will pay more than for others, because, as between precious stones, more is paid for the dia-

mond than for the opal, so it is between different forms of service. The pictures of the values are different in the patient's mind, and it is hard to change these pictures.

However, we should study and strive by every honorable means to arrive at a correct system, so that we may charge fairly.

On my ledger, I especially note the manner of payment, when, where and how to be made, and I find it a good plan.

It is well to know what your patient can pay, for obviously you wouldn't try to talk a laborer's child into a thousand dollar case of orthodontia, and yet you would not hesitate to tell a prosperous business man that he should spend a thousand dollars on his child and proceed to show him why.

"Yield unto Cæsar that which is Cæsar's" but unto me that which is mine, is a lesson to all of us. And say what you will, you and I often work for supposedly deserving people for less than we should and these people could pay as well as some others of whom we ask more.

I have heard it said that a professional man's work was worth in proportion to what his patients were able to pay. And in a great many instances you will lose patients unless you charge them well. A fee that keeps you always laboring, and only permits you to eke out an existence, will never permit you or any of those dependent on you, to get the rubber tire habit.

I presume that there are a great many who have good records, but if you have not you are cheating yourself and casting a certain amount of discredit upon the profession of which we want you to be an honorable member.

621 COMMERCE BLDG.

TO SAVE TIME DURING THE USE OF SILICATE CEMENTS.—The majority of silicate fillings are placed in the upper teeth while the rubber-dam is in position. To save time the dam has been drawn down and tied with a ligature and then cut off. This sometimes strains the rubber so that leakage occurs, and when finishing it is sometimes annoying to control the loose margins, and there is also danger of moistening the filling. As a substitute for this procedure the following has proved valuable: During the hardening of the cement, turn up the lower edge of the dam and pin it securely to the upper edge on both sides. The patient can now talk, expectorate, etc., as though the dam were not in position, and even other work can be done.

When finishing is in order, the dam is turned down and the work comfortably proceeded with.—OTTO E. INGLIS, Philadelphia, Pa., *The Dental Cosmos*.

SELLING DENTURE SERVICE

I. J. DRESCH, TOLEDO, OHIO

Although artificial dentures were the first mechanical restorations made by dentists, denture work is to-day the most poorly paid branch of dentistry. Notwithstanding the great advancement of the work it is not as remunerative to-day as it was fifty years ago. To a majority of dentists with a practice of $3,000 or more, denture work is actually unprofitable. These statements may seem far fetched, even a trifle pessimistic, but they are hard, cold facts, which must be squarely faced and eliminated before denture fees can be placed on a proper basis.

In comparison with denture work, a fair fee is received for crown and bridge work, fillings, inlays, etc. Is there any legitimate reason why the other forms of work should be more profitable than denture work? Most assuredly there is not. Then why do such conditions exist? Let us take an example. Suppose you have a case for a cast gold inlay; you are extremely careful to apply the most thorough and scientific knowledge in the cavity preparation, and in securing normal occlusion. When you have set the inlay you are paid for the material used, general expense, and your time plus—your knowledge. You have been paid for your professional knowledge. Now on the other hand suppose a full upper denture is to be made. Perhaps an ordinary plaster impression is taken with the mouth open, then the patient is instructed to close the jaws on a roll of wax for the bite. That is as far as the patient's knowledge of the work goes and to the patient the service is as mechanical as the Bertillon system of recording thumb prints; and the patient pays for the service as such. To place denture work on a financial parity with other branches of dentistry it is necessary for the dentist to be paid for material, general expense and time plus knowledge. In other words denture work must be placed on a professional basis before the dentist can expect professional fees.

Here is how three dentists of a city in the middle West placed their fees for denture work on a professional basis. In the same city there are more than one hundred dentists. The average fee for a denture is $12 and for an upper and lower $20. Twenty of the most progressive dentists were asked if they endeavored to sell anatomical articulation to the patient? If they had become acquainted with the closed mouth method of impression taking and if they explained the beauty of Trubyte teeth to the patient? The astounding result was that **seventeen out of the twenty answered all three questions in the negative.** When asked why they made no effort to sell such service the answers were varied.

One said, "What is the use? It goes over the patient's head" another "I do not have time." But all agreed that as a general rule they never thought of trying to sell anything better. The three dentists who answered the questions in the affirmative said they always explained the merits of articulation, scientific impressions and Trubyte teeth. That they had no trouble in persuading eighty per cent. of the patients to accept the better service. One said he did not think it would be fair to the patient to go ahead with the ordinary work and not explain the better things. These three dentists average $50 for an upper and lower. They said they often received $60 but the fee would be somewhat reduced for some of their old patients, and those not financially able to pay well.

One was asked how he presented his selling talk to the patient. His answer ought to mean increased fees for many dentists. "First of all I explain the difference between an impression taken with the mouth open, and one that is taken with the mouth closed. The average patient is interested in how the work will be done so I take time to make all perfectly clear to the patient. Then I show the difference between occlusion and articulation. Two specimen cases are best for that; one set arranged the old way and mounted on a plain line articulator, the other set anatomically articulated and mounted on a Gysi Simplex. These specimens make it easy for the patient to understand what articulation means. Of course I show the beauty and efficiency of Trubyte teeth, the moulds and shadings as compared with other teeth, and there are very few patients who do not readily see their superiority."

This dentist has been in the same location seventeen years. His office is in the residential district of a middle class of people. He has increased his denture fees one hundred per cent. in the last five years, and he is not what could be called a good salesman; just a good conscientious dentist who has been rendering service. He has found that people in moderate circumstances will pay for service; and he has placed his denture work **on a professional basis and is being paid professional fees. He is being paid for material, general expense and time, plus—put the plus—in your denture fee.**

360 SPITZER BLDG.

Bad teeth and ill-kept gums not only look bad, and feel uncomfortable if not painful, but they let in more serious disease like rheumatism, chronic sepsis, and tuberculosis. It doesn't pay to "let the teeth go."

—*The Healthy Home.*

THE SUCCESSFUL PRACTICE OF DENTISTRY*

By Wallace Seccombe, D.D.S., Professor Preventive Dentistry and Dental Economics, Royal College of Dental Surgeons, Toronto

This excellent article is worthy of careful reading by every dentist who desires to combine good professional and good business methods.—Editor.

There was never a time when more exacting demands were made upon the dental surgeon than the present. Changes in the science and practice of dentistry are so rapid that a practitioner may become old-fashioned in five years. Fifteen years ago the younger members of the profession were universally considered more modern in their practice than were the older graduates. That time has passed. Advances have been so rapid that it is not now a question of being old or young, but whether you are abreast of the times. The advantage has gradually passed from the younger graduate to the older man, who is familiar with the best thought of the profession and is able to bring his wider experience to bear upon modern methods of practice.

The standard of dental service is being continually raised. The dental graduate who leaves college to-day with the impression that he can settle down comfortably to the practice of dentistry, dispose of his college texts, ignore dental magazines and dental meetings, stamps himself, at the very outset, as a complete failure. Likewise, the older practitioner who has failed to study the later dental works and has thought himself too busy to attend dental conventions is also a failure. He does not render that high quality of service which his years of experience would otherwise make possible.

Heretofore, there have been those who have argued that the practice of dentistry would never assume the importance of that of medicine, because in the one case a tooth was at stake and in the other a life. The logic of that argument has been destroyed through the discoveries of science, that the presence of rheumatism, neuritis, endocarditis, gastric ulcer, nephritis, and other systemic lesions are due, in many cases, to local foci of infection about the roots of teeth. Rosenow has established conclusively the facts concerning the transmutation of streptococci, the organism having, in one instance, an affinity for the joints; in another, for the appendix, or in still another for the stomach.

*Read before London Dental Society, 24th February, 1916.
Read before Toronto Dental Society, 13th March, 1916.
Read before Hamilton Dental Society, 15th March, 1916.

For many years the dental profession has recognized the relationship between septic conditions in the oral cavity and many systemic diseases, but that knowledge has been based largely upon clinical experience. Through the observations of Hunter and Osler, and the experiments of Rosenow, Billings, Gilmer and others, the direct relationship between local foci of infection in the oral cavity and systemic conditions of disease has been scientifically shown. The result is that leading members of the medical profession have come to regard dentistry as a most important factor in preventive medicine.

Now what does all this mean? It means that the practice of dentistry is a matter not of saving the teeth alone, but of preserving life and health. It means that much of the present practice of dentistry will be revolutionized. As a profession we shall have to adopt an entirely different attitude toward the question of the vitality of the teeth and the treatment of those roots that are comfortable and apparently healthy, and yet are maintaining a source of systemic infection. It means that the public will appreciate the importance of aseptic root canal work, and will, because of the vital issues at stake, demand that dental service be rendered in conformity with the most advanced methods of practice, and be more willing to pay adequately for that service.

Now let us turn for a moment and ask ourselves the question: What is the successful practice of dentistry? The successful practice of dentistry might be defined thus, the rendering of the best possible service, under the most agreeable conditions, and the acquirement of fair remuneration for the service so rendered.

When we speak of "rendering the best possible service" we are dealing with a variable factor. The service rendered by one dentist may be a very different service to that rendered by another, though in each case the service may have been "the best possible." It is likewise true that circumstances may compel, in different patients, different treatment of similar conditions, and though the operator be the same, and though he may render the best possible service under the circumstances, the service rendered in each case may vary.

Rendering service is, after all, the most important factor in successful practice. Unfortunately, skill and success are by no means synonymous, though a distinct relationship exists between them. Better dentistry makes for success, and success encourages better dentistry.

There are many dentists, skilled in the science of dentistry, who fail entirely in the successful conduct of a dental practice. Upon the other hand there are those possessing only average skill, who apply correct principles in the management and control of practice, and who, therefore, meet with a fair measure of success. Every member of the

profession should aim to be, not only a skilful dentist but a successful dentist.

The recognition of the successful dentist is much easier than his analysis. Under the microscope he proves a most elusive individual, and consequently we will approach our subject from the synthetic standpoint and study a few of the factors which make for success. To attempt any set formula would be as foolish as it is impossible. Thoughtless imitation must be avoided, for, after all, the greatest success for any man is the highest and best possible development of himself. We are not, upon this occasion, so much concerned about the creation of some fanciful character that we may emulate, as we are anxious to study the fundamentals upon which success is built, that we may, each in his own way, endeavor to apply these principles to his individual problems and harmonize daily conduct with those laws which govern successful practice.

It is interesting to study the evolution of the dental professions' attitude toward this question. In the early days attention was focused upon the service to be rendered to the exclusion of almost every other consideration. Later the thought of the profession was directed toward the rendering of the service under the most agreeable conditions. This naturally led to the study and use of every approved means for the relief of pain, the acquirement of the best dental equipment, and the adoption of well appointed and pleasant office surroundings.

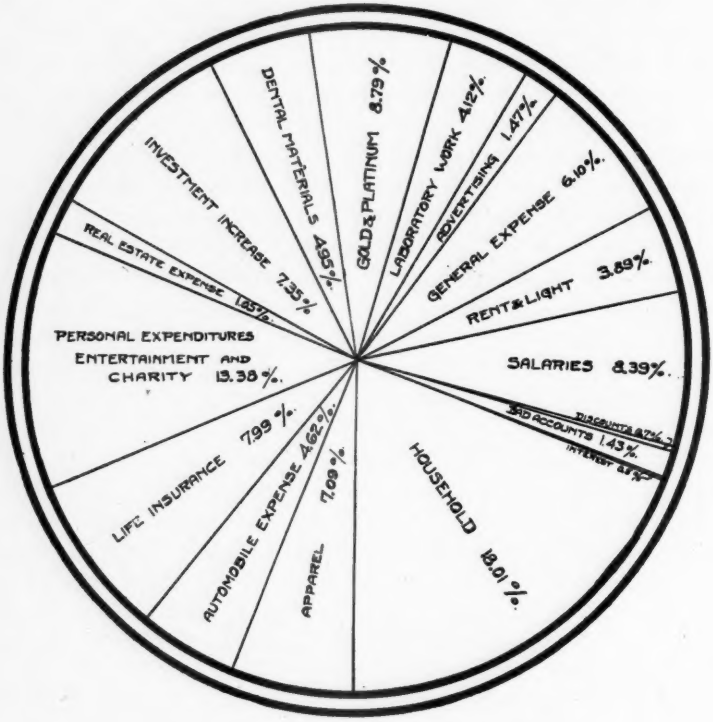
The third requisite is equally essential to successful practice, namely, the acquirement of a fair equivalent for the service rendered. An equivalent to be fair must be intelligently fixed. Haphazard methods in this important matter works nothing but injustice to both patient and operator. It is simply a question of equivalents. To render a service without proper remuneration is unfair to the operator. To secure a fee without rendering the best possible service is equally unfair to the patient. In either case an element of dishonesty enters and failure results. Unless economic law operates successful practice is impossible.

(*To be continued in the July issue*)

A One-mix Investment for Small Repairs.—Invest the full flask and just previous to the setting of the plaster place a piece of tissue paper over the repair, cover over with the balance of the plaster and put the top of the flask on. Quick and safe.—A. M. Gordon, Brisbane, Q.—*Commonwealth Dental Review.*

"WHERE HAVE MY PROFITS GONE?"

By Nils Juell, D.D.S., Minneapolis, Minn.



The 1914 Dollar

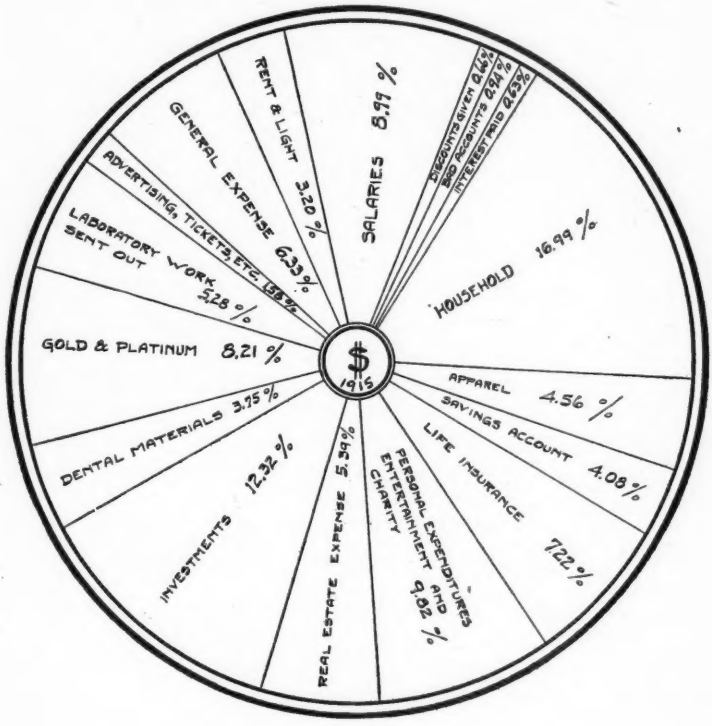
In 1915, my "1914 Dollar" was published and now I am pleased to present, my 1915 Edition.

Your observant readers will probably notice that I cut my operating expense considerably, and that I must have increased my credit in the bank.

The items are taken from my ledger. Many accounts which show up on my books minutely, have been put together under one heading, as "Personal Expenditures, Entertainment, and Charity." I did not attempt to change it this year, as it would have made comparison more difficult.

I see, however, many ways in which it can be improved, and will show that in some future "attempt."

One item of interest is perhaps the change of "Automobile" to "Saving's Account." Instead of owning an automobile, I hired one, when needed, as they are very cheap in our cosmopolitan city. Such bills were charged up to "Entertainment." Our small loss of bad accounts can be credited to personal attention instead of trusting so-called Agencies. "Discounts" perhaps needs explanation.



The 1915 Dollar

Discounts are given when a patient can't stand the price. One regular cost-price-system prevails, and is discounted in certain instances, and same discount charged to "Expense." Could properly be charged to Advertising account.

Life Insurance, Investments, and Saving's Account represents the "Rainy Day Stuff." The balance is spent to make supply houses happy and to keep the wolf from the door.

In conclusion, I wish to thank the *Digest* for the many good points I have received from Brother Bill.

A REPLY TO "JOSH" AND "R. A. W." IN THE MARCH DIGEST*

"Josh" encourages the elimination of "rough necks" and "K. M.'s"; And now comes "R. A. W." with the discovery that any dentist could advertise his practice or employ an expert ad-man to do it and "Lo! and behold" all dentists are again on equal plane (commercially) with an added burden of expense.

My Dear Doctors: The law of "the survival of the fittest" is acknowledged as unalterable, and if we choose to "hobble" the progress of our profession to take care of unfortunate fellow practitioners then pray tell me if we are honestly honest to the public at large?

All people are not "nearly rich" and *all* people cannot afford to pay $3.00 for alloy fillings or $10.00 for crowns. It is a foolish business doctrine that teaches "to H— with the poor." And now think this over too; many advertising dentists are doing good conscientious work, with large incomes on a moderate fee basis, not by a process of filching patients from other dentists, but by teaching the "common folks" the value of good teeth together with an inducement to have their work done. Increased patronage takes care of the office income, and lots of laymen are better off while the profession needn't feel injured. Let us not forget that Dentistry is the *only profession in the world* that is compelled to sell a visible "commodity" along with a professional service.—R. L. S.

PROVING NEGLIGENCE OF DENTIST

By A. L. H. Street, St. Paul, Minn.

When suit is brought against a dentist for damages claimed to have been sustained by a patient through negligence in the way in which work has been done, resulting in a fracture of the jawbone, it becomes an important matter whether the law casts the burden on the dentist to affirmatively establish the fact that he was not negligent and that the fracture resulted from some condition of the jaw, of which he was justly ignorant, or whether the burden is on the patient to affirmatively show the contrary. If the former proposition were true, it would be more difficult for the dentist to exonerate himself from liability in many cases. All the patient would be required to show would be that in extracting a tooth, defendant broke the patient's jaw. In a lawsuit recently before the Illinois Appellate Court (Blodgett v. Nevius, 189 Illinois Appellate Court Reports, 545) this precise situation occurred.

*Pages 164 and 171.

Plaintiff rested his case on mere proof that his jaw was broken in the extraction of a tooth, and was denied recovery. In short, the court held, and this seems to be generally recognized law, that there is no presumption of want of due care or proper skill on the part of the dentist merely because of the fracture. The suing patient must go farther and show that the break would not have occurred except from some negligent or unskillful act on the part of the dental surgeon.

RIGHT TO RECOVER FOR DENTAL SERVICES

There can be no recovery in New York for dental services where plaintiff fails to show that when he performed the services he was duly licensed to practise his profession, according to a decision of the New York Supreme Court handed down in the case of O'Beirne vs. Carey, 150 New York Supplement 666. This decision means more than that an unlicensed dentist cannot recover for work done; it means that even a licensed dentist must affirmatively establish the fact that he has been duly registered. In the latter case, the dentist's assumption that the patient who is sued will not controvert the fact that a license has been issued is apt to result in an adverse judgment, unless respect is paid for the decision announced in the cited case.

CAUTION

Editor DENTAL DIGEST: WEST TAMPA, FLA., March 30, 1916.

New York City.

DEAR SIR:

As a matter of warning to your readers will you kindly publish that a man giving the name of J. B. Boone, has been in this vicinity representing himself as a general agent of The Dentists' Supply Co. and other manufacturers and soliciting orders on which he collects a payment and departs. He also represents that he has second-hand goods in first class condition, which he offers at a low price, collecting a first payment.

He is about 45 years of age, walks with a cane and owing to a weakness in back or legs walks with difficulty. He frequently asks dentists the cost of having a full upper plate and lower partial plate, using that as a bait for a large order.

I wrote to one manufacturer whom he claims to represent and they disclaim his connection.

Several have notified me of their failure to receive goods ordered from him.

Yours truly,

F. L. ADAMS, Secretary
Tampa District Dental Society.

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. To avoid unnecessary delay, Hints, Questions, and Answers should be sent direct to him.]*

POLISHING CROWNS.—I have prepared a dozen clothes pins to fit various sized crowns, and find that in polishing crowns, these clothes pins hold better and are more satisfactory than any crown-holder now on the market.—NILS JUELL, D.D.S., Minneapolis, Minn.

TO SPLICE AN ENGINE CABLE.—Take the end of the cable that is to be drawn into the other, and at a point about an inch from the end pick up a single thread and pull it out; proceed all around the cable until there are six threads sticking out from the side of the cable an inch from the end. Cut these ends off. The end of the cable is then about half the size originally, and may be drawn into the other end in the usual way and sewn down neatly.—D. W. BARKER, D.D.S., Brooklyn, N. Y.

METHODS TO FACILITATE THE ATTACHMENT OF GOLD CASTINGS TO STEELE'S BACKINGS.—Select backing projecting beyond facing, about one-sixteenth of an inch. Trim backing flush with facing except at the four corners where little lugs are left which are bent toward surface of backing, to be covered by the casting (care must be taken not to bend backing away from facing). When the gold cast is cast against the backing, it is held firmly in place by the lugs. Another way is to select a backing flush with facing after trimming and then punch four small holes in backing which are countersunk on surface toward facing. When waxed up holes must be full of wax, flush with surface. The casting will be securely attached to backing by the undercuts caused by countersinking, eliminating the necessity of soldering lugs to backing.—M. HOLLWAY, D.D.S., Buffalo, N. Y.

TO GET PROPER RESULTS WHEN USING SYNTHETIC PORCELAIN IN PROXIMAL OCCLUSAL CAVITIES IN BICUSPIDS AND MOLARS.—Take a steel matrix band and coat it well with flexible collodion and apply same to tooth with the matrix retainer. The synthetic material may then be packed in, same as amalgam, giving a very hard and dense filling with no discoloration. The celluloid strip or matrix will not cling to the cervical margin.—GEORGE E. COX, D.D.S., Wilmington, Del.

*In order to make this department as live, entertaining, and helpful as possible, questions and answers, as well as hints of a practical nature, are solicited.

FOR SENSITIVE ROOT CANAL.—For cases where the root canal is extremely sensitive after removing live pulps from anterior teeth, moisten the canal with a 50 per cent. sol. of silver nitrate. Care must be taken not to get the medicament too close to the apex.—M. WILLIAMS, D.D.S., Wheaton, Minn.

NATURE'S OWN ANESTHETIC.—Cavities can be outlined and prepared up to the point of convenience form or retention pits without adjusting the dam, if the operation is painless or as nearly so as is possible, as is the case if a constant stream of warm water is sprayed upon the bur or cutting instrument at all times. Not only does this allay pain but it keeps the field of operation clean.—*Pacific Dental Gazette.*

REPAIRING PLASTER CASTS.—Celluloid is dissolved in equal parts of camphor and ether, enough to make a creamy mixture. The parts of the cast are perfectly dried, painted with this solution, firmly united, and allowed to dry. This celluloid mixture is insoluble in water, and does not suffer by vulcanization.—*La Odontología Peruana.* (—*The Dental Cosmos.*)

METHODS OF RELIEVING PAIN WHILE OPERATING ON A SORE TOOTH.—Use pressure in the various directions to ascertain if soreness is in a particular side or root. Usually a ligature can be passed around the tooth with little discomfort. If this is impossible, use small orthodontia wire. Fasten at the side that is sorest. It is well to make a loop for the finger to pass through while pulling. If lateral pressure caused in this way produces pain, use two ligatures or wires, fastened at opposite sides of tooth, then bring the ends together over occlusal or incisal, and thus get a straight pull. Often a firm grasp with thumb and forefinger will suffice, approximating teeth serving to steady the grasp. Modelling compound placed against the teeth, and allowed to cool, (one piece lingually and one labially or bucally, and held with thumb and forefinger), aids greatly in supporting loose or sore teeth while operative work is done.—K. K. CROSS, D.D.S., Denver, Colo.

SIMPLE METHOD OF ALTERING SEAMLESS CROWN DIES.—Am using a Sharpe's seamless crown outfit, and sometimes find that the tooth forms are too wide, or that the cusps or fissures need slight altering. I find that a simple way to correct or change these tooth forms is to run up the die in the usual manner, split the die, and oil the tooth impression. I then put the die together again, and fill it with a medium mix of plaster of Paris. While this is still soft I insert a tooth pick or metal post in the same position as we find it in the regular rubber tooth form. When the plaster has set, I remove it from the die and make whatever changes

are necessary by carving it. Then I put it on the rubber base, the same as a regular rubber tooth form, and pour a new die over the plaster model. I then make the crown in the usual manner with very satisfactory results.—FRANK MAYER, D.D.S., Grafton, Wis.

TO MAKE A BEAUTIFUL PLATE.—In a case of upper extraction for a full plate where there is marked protrusion and while patient is under somnoform or ether, after teeth are out, cut a layer of gum tissue and process off from first bicuspid on one side to the first bicuspid on the other side, with a curved pair of shears. This will make it possible to make a beautiful plate. I have performed the above operation in several cases with gratifying results.—M. WILLIAMS, D.D.S., Wheaton, Minn.

TO SAVE TIME AND MATERIAL IN INVESTING INLAY MODELS.—Set the inlay flask on a piece of rubber dam that has been placed on a piece of plate glass, which, if the end of the flask is true, will make a water tight joint. With a syringe, about half fill the flask with water and add the investment compound, making the mix in the flask. Then invest the model as usual. If not enough water has been used, a few drops may be added. A very little experience will teach one exactly how much. A lot of time and probably 75 per cent. of the material is saved.—F. H. MILLER, Aylmer, Ont., Can.

TO PREVENT THE SOFTENING OF CARVING COMPOUND IN MAKING CROWNS BY HOOD METHOD.—When the lowest crown is ready for the metal, oil the surface well. It will be found that the oil will keep the hot metal from spoiling the sharp lines on model.—J. C. TINSLEY, Lynchburg, Va.

A NEW METHOD OF HANDLING UNDERCUTS IN MAKING METAL PLATES.—Treat the impression with separating fluid, run the undercuts. Now smooth this up so that they will draw straight away from the finished model. Treat these with separating fluid and run model. The model will now be in two or more parts. Place parts in their correct position and invest in sand mould. Knock out model. The parts representing the undercuts will remain in the mould. These may be removed with care without disturbing the model. Now proceed with the hot zinc.—J. C. TINSLEY, Lynchburg, Va.

PREVENTING THE CRACKING AND BLEEDING OF CHAPPED LIPS.—When a patient presents with chapped lips, which would crack and bleed if stretched, the lips are coated with resinol ointment. The lips will then be soft and pliable, and will stretch without cracking and bleeding. —S. M. MYERS, *Texas Dental Journal*. (*The Dental Cosmos.*)

QUESTIONS AND ANSWERS

Question.—As a subscriber to the DENTAL DIGEST I would like to ask you what you consider a good every day "root filler?" I shall appreciate an early reply.—J. S.

ANSWER.—I use and can recommend, chloro-percha pumped into canals with twist broach rotated backwards, followed by guttapercha canal points as near diameter of canals at apex as can be selected, points being carried in and melted off at about apical third of canal with hot plugger. Pulpal two thirds of canal and pulp chamber being filled with Flagg's Ox Chloride Cement.—V. C. S.

Question.—I have been bothered for some time by deterioration of rubber tubing, bags, etc. Please answer through your "Practical Hints" in the DENTAL DIGEST if you know of any way to prevent same.—A. D. D.

ANSWER.—Treating with strong ammonia fumes occasionally will retain or restore life to anything made of rubber, if it is not too dead.—V. C. S.

Editor PRACTICAL HINTS:

In a recent issue of the DIGEST, I noticed a suggestion in regard to the opening of a lame tooth, using a dentimeter and ligature. That is a very good method, but what seems to me a better one is the use of conductive or infiltrative anesthesia.

In a case that presented for treatment a few days ago, I was confronted with an upper second molar with both pulp and peridental membrane highly inflamed. Two injections of novocain, one buccally and another lingually, enabled me not only to open the tooth, but also to remove the inflamed contents absolutely painlessly.

While I do not make a practice of removing pulps from multi-rooted teeth by novocain anesthesia, I do highly endorse conductive and infiltration anesthesia for such purpose in the single rooted teeth, and in conditions similar to case cited above.

Yours truly,

C. M. GILLOCK, D.D.S., LaRussell, Mo.

DIGESTS

MANAGEMENT OF CHILDREN AND THE TREATMENT OF THEIR TEETH

By CLARENCE R. MINNS, D.D.S., TORONTO

TREATMENT OF EXPOSED PULPS IN VITAL TEETH

In a great majority of cases, unless the pulp is too extensively exposed, I invariably resort to pulp-capping. First carefully excavate the decalcified tissue and dry cavity, cauterize with phenol. Then cover the exposure with a paste of oxidized zinc and oil of cloves. Next take a small piece of paper just large enough to cover the floor of the cavity, mix a thin mixture of oxy-phosphate of zinc cement and place it on one side of the paper and place the cement side down in contact with the cavity seat, gently tapping it to place so as to avoid pressure. Now the cavity may be carefully filled with copper cement. Now if the pulp should die in one of these cases, and we have the patient under our care continually, we have a fairly easy condition to cope with; an easier one, to my idea, than what the extirpation and removal of a vital pulp from a deciduous tooth is.

In a very few cases, however, it is absolutely necessary to extirpate the pulp, and there are two methods open in most cases. The first one is reasonably safe, but a rather slow and difficult operation. The second one is fairly easy and quick, but rather dangerous, unless one remembers well the prospective dates of complete calcification and of commencement of decalcification of the roots of temporary teeth.

We will first consider the safe and most reliable method, the use of phenol. This is a somewhat slow and tedious operation, and generally requires from three to five sittings. At the first sitting, seal in phenol in contact with the pulp after having enlarged the exposure. At the next sitting, after from three days to a week, it is often found that the pulp can be removed entirely from the chamber. Then force phenol into the root canals, using pressure with raw vulcanite, and leave for three or four days. At the third sitting, usually by carefully manipulating the broach, the pulp may be all removed, although it may take a couple of additional sittings in some cases.

The second method of procedure is the use of a very limited quantity of arsenic, and as these teeth are very susceptible to its action, it should never be left more than twelve hours. In connection with

the use of arsenic, it is necessary to remember that in temporary molars, generally speaking, the roots are completely calcified at the third year and decalcification does not commence till the seventh or eighth year. After twelve hours the pulp can usually be removed with barbed broaches. The canals are dried out and flooded with a solution of silver nitrate. The roots are then filled with a paste of calcium phosphate and creosote. The cavity in the tooth can then be filled with copper cement if it is not too large.

If the cavity included two thirds or more of the crown, the crown should be ground down, leaving a saucer-shaped cavity which is stained with silver nitrate.

PUTRESCENT PULPS

Teeth with putrescent pulps should have the canals thoroughly cleansed and a mild treatment of formo-cresol sealed for a few days. If the conditions are favorable at the next sitting, the canals should be dried and stained with silver nitrate and the cavity filled, if not too large, or the crown ground off and the remains painted with silver nitrate.

ABSCESS WITH SINUS

All decay and pulp débris should be removed and the sinus cautiously washed out with sterile water, followed by a little oil of cloves or creosote, using pressure with raw vulcanite to force it through. The tooth should be sealed up and left for three or four days, when in most cases the sinus will have healed, for these cases respond very readily to treatment. Mechanical and medicinal treatment should follow, and when in a healthy condition it should be similarly treated to the other pulpless teeth.

In extracting for children, it is only wise to extract teeth which are loose due to the absorption of roots, or those in which the pulp having died and the permanent successor can be detected as forcing its way up to place. Also any case in which severe abscess contraindicate further retention. If only loose teeth are to be removed, there is very little need for an anæsthetic, although a local anæsthetic can be quite nicely used. In cases of extensive extraction or of bad abscessed conditions, somnoform perhaps gives the best results.—*Oral Health.*

Securing Brightness in Aluminum-Rubber Plates.—The hydrogen sulfid liberated in vulcanizing has a tendency to darken the aluminum in aluminum-rubber plates. To avoid this, the aluminum base-plate is covered with shellac or sandarac.—*The Dental Cosmos.*

EPITOME OF CURRENT DENTAL AND MEDICAL LITERATURE

[*Practical Dental Journal*, March, 1916]

Original Papers

Inheritance of Malocclusion From a Biological Standpoint. By T. G. Duckworth, D.D.S.
Historical Sketches and a Few Items in Practice. By J. G. Templeton, A.M., D.D.S.
The Oral Prophylaxis Treatment vs. Cleaning Teeth. By Gillette Hayden, D.D.S.
Coöperation Between the Dentist and the Orthodontist. By Martin Dewey, D.D.S.
*Correlating Conditions Common to Nose, Throat and Oral Surgery. By E. B. Cayce, M. D.
"Bad Canal Work": What Shall We Do About It? By Howard P. Raper, D.D.S.

CORRELATING CONDITIONS COMMON TO NOSE, THROAT AND ORAL CAVITY

By E. B. Cayce, M. D., Nashville, Tenn.

We are coming to see more clearly all the time from observations of such men as Drs. Billings and Rosenow, in their work along the line of focal infections, the importance of examining thoroughly the gums and alveolar processes in searching for the focus of infection, at the same time the tonsils and sinuses and middle ear are being examined for the same. Dr. Rosenow says that a radiograph is necessary before we can say positively that alveolar processes are not harboring such a focus.

The cause of infection must be removed, whether by the dentist or by the medical practitioner, either general or special.

MOUTH BREATHING

One of the most frequent causes of conditions in the correction of which both dentist and ear, nose and throat surgeon play a part is *mouth breathing*. This most generally occurs in children who have hypertrophied adenoid tissue in the epi-pharynx, which, if uncorrected, later on produces the results so often seen, namely, a narrow arch, high palate, protruding teeth, shortened upper lip, contracted, undeveloped nose.

The time to remove hypertrophied adenoid tissue is when it first begins to give symptoms. In reply to the statement so often made "that the adenoids will *disappear*," we would say that it is true they atrophy to a great extent about the age of fourteen to sixteen, and the posterior nares will become larger, so that the nasal stenosis is less apparent, but you have, as sequelae, oftentimes many disfiguring results, among them the malocclusion of teeth, which requires time and patience to rectify, if it can be done at all.

Another late result of adenoids is the pathology in the nose, such as deviations of the septum, which is explained by the fact that the nose

is the last part of the face to develop, and the nasal septum is turned from its natural course by the abnormally high palate. It seeks the way of least resistance and you have either a thickened septum or one deviated on one or both sides.

TONSILS

In connection with the adenoid, we naturally think of the tonsils and these are of special interest to the oral surgeon, as it is impossible to have a healthy mouth with infected tonsils. They should be looked after closely in any case of pyorrhea alveolaris, or where teeth show a too rapid tendency to deteriorate.

As a matter of interest, I will now quote you some figures made from examinations of 53 tonsils from whose crypts smears were made and these compare closely with infections reported from investigations in pyorrhea alveolaris.

In a series of 53 cases in the last three months we have found that 50 cases where the smear was positive were staphylococcic and only 13 *single* infections—18 cases of streptococcic infections with not a single pure culture.

THE ANTRUM OF HIGHMORE

Now we come to speak of the most frequently infected of all sinuses of the nose—antrum of Highmore—because of its size and the location of its os, as well as frequency of infection through the alveolar processes.

It is generally claimed by authorities on rhinology that only a small percentage of infected antrums were of dental origin, but my experience since I have been having a radiograph in every case of infected antrum has shown me that a very large majority are of dental origin.

It is useless to open and drain an antrum if you have infection from the teeth, and especially is this true when infection occurs around the second bicuspids and molars. I do not feel that any man is justified in operating on an antrum without a radiograph.

[*The International Journal of Orthodontia*, March, 1916]

Original Articles

Face Facts. A Clinical Study of Dento-Facial Deformities. By B. E. Lischer, D.M.D., St. Louis, Mo.

The Teeth as Factors in the Economy of the Animal Kingdom. By Martin Dewey, D.D.S., Kansas City, Mo.

Orthodontia—Its Place in Dental Education. By Lawrence W. Baker, D.M.D., Boston, Mass.

Inheritance of Malocclusion from a Biological Standpoint. By T. G. Duckworth, D.D.S., San Antonio, Texas

A Case of Neutroclusion, Complicated by Extreme Distoversion of the Upper Central Incisors, and Redundancy of Number. By Urling C. Ruckstuhl, D.D.S., St. Louis, Mo.
Gaining and Keeping the Child's Confidence During Orthodontic Treatment. By Raymond L. Webster, D.M.D., Providence, R. I.

[*The Dental Cosmos*, April, 1916]

Original Communications

The Endamœbæ and Pyorrhea Alveolaris. By Percy R. Howe, A.B., D.D.S.
The Orthodontia Respiration Shield. By A. L. Johnson, D.M.D.
A Technique That Will Make Perfect Amalgam Fillings Possible. By Wm. E. Harper, D.D.S.
*A Few Conditions of Common Interest Both to the Dental Surgeon and the Nose-and-Throat Specialist. By Wm. T. Patton, Ph.C., M.D., F.A.C.S.
War Dental Surgery: Some Cases of Maxillo-facial Injuries Treated in the Dental Section of the American Ambulance at Neuilly (Paris, France.) (II.) By Dr. Geo. B Hayes.
The Inflammatory Tissues of the Gingival Margin and Periodontal Membrane: Treatment by Ionic Medication. By Ernest Sturridge, L.D.S., D.D.S.
The Present Status of Emetin in the Treatment of Pyorrhea. By Edmund N. Beall, D.D.S.
The Design and Retention of Partial Dentures. (II.) By Douglas Gabell, M.R.C.S., L.R.C.P., L.D.S.
The So-called "Innervation" of the Dentin: An Epicriticism. By A. Hopewell-Smith, L.R.C.P., M.R.C.S., L.D.S.
Radiodermatitis Following X-Ray Examination of the Teeth. By Geo. M. MacKee, M.D.
The Culture Value of a Dental Education. By Booker N. Hargis, D.D.S.
Hygiene and the Dentist. By Prof. Irving Fisher

Correspondence

An Instance of "Re-discovery"

A FEW CONDITIONS OF COMMON INTEREST, BOTH TO THE DENTAL SURGEON AND THE NOSE-AND-THROAT SPECIALIST

By William T. Patton, Ph.C., M.D., F.A.C.S., New Orleans, La.

MAXILLARY SINUSITIS OF DENTAL ORIGIN

The antrum of Highmore, or maxillary sinus, has long been and is at present considered to be, to some extent, the field of the dental surgeon. Dental surgeons such as Brophy claim that about 70 per cent. of maxillary sinusitis is of dental origin. On the other hand, Cryer estimates 29 per cent., Richards 30 per cent., other authorities as low as 8 per cent. Skillern states that about 25 per cent. is the correct average.

Anatomy. This sinus is situated in the superior maxillary bone in the form of a pyramid, with the apex extending outward into the malar process. The maxillary sinus is bounded anteriorly by the canine fossa, superiorly by the orbital plate, internally by the lateral wall of the nose, and posteriorly by the spheno-maxillary fossa. An angle of the pyramid extends downward, which is known as the palatal fossa. Some authors state that this inferior border in the normal maxillary sinus is even with

the floor of the nares. That is not true; in normal subjects it always extends below the nasal border, except in the most anterior portion. This is of great importance in the event of maxillary sinusitis, because it is this portion of the floor that is most intimately associated with this disease.

The feature of greatest importance is the relation of the floor of the sinus to the teeth. Here lies the genesis of disease of the maxillary sinus of dental origin.

The floor of the sinus descends very abruptly until it meets the first and second premolars, these being the teeth most intimately associated with the floor of the antrum. The sinus floor then ascends as it extends posteriorly, so that the third molar is farther away than the second molar. The roots of the second premolar and the first molar are in closer approximation to the mucous membrane of the sinus than the roots of any other teeth.

The sinus floor recedes as it goes back and ascends as it comes forward, so that the second premolar and the first molar are in closer proximity to the sinus than any of the other teeth. In certain individuals who exhibit very little dental caries, a maxillary sinusitis may be present, while in other patients, whose teeth are very much more carious, there exists no trace of a sinusitis.

In some individuals the walls are so thin that practically nothing but the mucous membrane intervenes, and very little resistance is offered to sinus involvement from diseased teeth.

The boundaries of the normal maxillary sinus are slightly below the floor of the nose, extending to the orbital plate; externally, to the articulation with the malar bone; posteriorly, along that part of the maxillary bone until it articulates with the pterygoid process. Anomalies are formed by the negative pressure of expiration and inspiration, causing a variation in the length and depth of the sinus. This theory in regard to etiology has been substantiated in cases of children with adenoids and enlarged tonsils that cause mouth-breathing, the attendant lack of pressure resulting in abnormally small sinuses. Children who cannot breathe through the nose properly have abnormally small sinuses.

The normal covering between the top of the root and the floor of the sinus is the periosteum of the root, the cancellated bony structure of the floor of the sinus, and the mucous membrane; therefore when the mucous membrane becomes infected, it will sooner or later infect the whole cavity.

Etiology. It was previously supposed that carious teeth caused all infections of the antrum. It has been shown, however, by recent investigators, that this is merely one of a number of causes.

Infections of the maxillary sinus occur in three ways: (1) They are

communicated to the sinus by direct continuity from one tissue to another; (2) they are carried by the blood vessels and nerves; (3) they are communicated by means of the lymphatic vessels.

It has been conclusively demonstrated that infection may travel through an apparently healthy bone from a diseased area to another tissue without the bone through which it passes showing microscopically any signs of disease; in other words, the bone which forms a medium of communication of the infection is absolutely healthy. This has been demonstrated by microscopic as well as macroscopic examinations.

Of the acute conditions causing maxillary sinusitis, we will first of all discuss abscess at the root of a tooth. Such an abscess, of course, is due to a dead pulp which by progression ultimately infects the sinus.

It seems that as this infection travels upward through the bone, it reaches the periosteum and passes through it without causing very marked periosteitis; but the lymphatic canals transmit the inflammation, and convey the toxins directly through these medullary spaces of the bone until they strike the floor of the antrum, resulting in dental irritation, with purulent inflammation of the fibrous tissue, and final breaking-down and gradual suppuration, which does not occur until permanent pathological changes have taken place. These are the cases which cause the greatest amount of confusion to the rhinologist and to the dental surgeon.

The author would say that only about 20 per cent. of antrum trouble is caused from teeth.

The most common cause of antral disease is infection through the nose by direct continuity of the tissue. This surmise is substantiated by the observation that the great majority of cases clear up after simple washing of the antrum a few times with a Douglas trocar.

In chronic sinusitis, of course, we have to look out for involvement of other sinuses draining into the antrum, which at first acts as a reservoir; then by combined irritation the mucous membrane becomes diseased, and chronic sinusitis results. It also seems that the bone is more often involved in chronic cases, which renders careful surgical intervention all the more necessary.

It has been my practice, whenever I suspect antrum involvement, to make a complete examination of the nose, after first shrinking the tissues with cocain. If no pus is visible, suction is used and again an examination is made. Transillumination is useful, but very uncertain. If nothing definite is disclosed, the antrum is washed out, which is a simple procedure, and the only positive way of making a diagnosis. Even then we must not expect always to find any quantity of pus in washings, which are often only slightly turbid. If, however, cultures be made

therefrom, one will be surprised to find a pure culture of one of the pyogenic organisms. Several washings will relieve the symptoms.

If the case does not clear up after several washings, I always have the teeth looked after by a competent dentist, and have a skiagraph taken, showing the condition of the roots of the teeth and of old crowns. If the skiagraph shows disease of a tooth in the vicinity of the antrum, I do not advise extracting the tooth, unless it is already badly diseased. Any competent dentist should be able to eradicate the disease, and save the tooth; then I depend on intra-nasal treatment. Of course, if the antrum is full of polyps, and its mucous membrane is badly diseased, it will be necessary to do more radical work, and here the author prefers the Caldwell-Luc operation, which is easily performed under local anesthesia. A good exposure is made of the inner lining of the antrum, and the wound usually heals in a short time.

In closing, I would again emphasize my contention that the nose and throat surgeon and the dentist should coöperate more closely, and I am sure we could be more certain of our diagnosis, and the patients of both the dentist and the surgeon would be greatly benefited.

[*The Dental Review*, April, 1916]

Original Communications

The Problem of Dental Education in the Light of the Public Demand. By Edward C. Kirk.
Root Canal Treatment and Filling. By George C. Poundstone.
*Something on Oral Prophylaxis. By F. H. Skinner
The Menagerie of the Mouth. By B. J. Cigrand.
Some Observations on Bridgework. By H. F. D'Oench
Facts, Fads, and Follies Concerning Pyorrhea. By C. E. Bentley.

SOMETHING ON ORAL PROPHYLAXIS

By F. H. Skinner, D.D.S., Chicago

SOME ETIOLOGICAL FACTORS OF PYORRHEA

Pyorrhea is caused directly by infectious substances lodging and remaining on the tooth surfaces themselves. There are a great many causes which lessen the resistance of the soft tissues and bony support of the teeth, thereby making it possible for local infection to take place. The most prominent of these I consider malocclusion, which is due to many causes. In some cases, normal occlusion can be obtained only by orthodontia. When cusps articulate with portions of the teeth other than those designed for them by Nature, they produce an unnatural force which bruises the peridental membrane. In the mouth of the average person who has reached thirty-five or forty years of age, some portions of the teeth have worn down more rapidly than others, and the por-

tions not worn down usually cause a side pressure on the opposing teeth, thus injuring the peridental membrane and causing absorption of the process or else forcing the teeth apart at the contact points, which allows fibrous foods to impinge on the crest of the gum septum. Some other causes of irritation which reduce resistance are imperfectly formed enamel surfaces or those which have become etched from accumulations being left upon them until acid fermentation has taken place; fillings improperly finished at the gingival margins or fillings which cannot be made smooth, such as all the phosphates and some of the silicate cements; banded crowns and regulating appliances, which cause a great deal of irritation, if carelessly fitted, and bands which fit, but which have been driven up until they impinge the peridental membrane.

When the first permanent molar has been extracted, there is a tendency for the space to become closed and for the opposing teeth to elongate. The teeth posterior to the space come forward as a result of the pulling on the fibers due to the formation of scar tissue where the tooth was drawn. In a short time, malocclusion produces a force which causes the remaining teeth to tilt still more, and in a few months, most of the stress of mastication is brought to bear on the under side of the tilting tooth, bruising the peridental membrane at this point. Here also is usually found an accumulation which is a source of infection to the already injured tissues, and pyorrhea results. Unless the full space is maintained by the proper interlocking of the cusps of the remaining teeth, I believe it is perfectly legitimate to cut into the tooth at each end of the space and insert a bridge, preferably of the spur and inlay type. This method of making a short bridge maintains the space and occlusion and yet allows a little movement of the teeth in the alveolus without the danger of loosening the inlays. I do not believe in devitalization when it can possibly be avoided.

[*The Dental Register*, March, 1916]

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[*The Journal of the Allied Dental Societies*, March, 1916]

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Report of Society Meetings

Editorial Department

FURTHUR NUTRITIVE STUDIES OF DENTITION*

By William J. Gies and Collaborators

I. Studies of internal secretions in their relation to the development and condition of the teeth. 2. Effects of feeding glandular tissues, preparations and extracts.

SUMMARY OF GENERAL CONCLUSIONS TO SECTION I

Feeding experiments (24) of extended duration (20-99 days), with glandular tissues, preparations and extracts (12 kinds), on white rats (97), yielded results which suggest that possibly the proportions of calcium in both the dry (total solid) and mineral (ash) portions of the incisor teeth were *decreased* by some of the treatments—pineal gland, salivary gland, and thyroid gland, particularly—and *increased* by treatment with testicle.

A general tendency to decreased proportionate content of calcium in the teeth of the treated rats was concomitant with general diminution of growth rate, and with smaller gross gain in weight by the end of the experiments.

There were no definite effects on the dimensions, curvature, or weights (total solids, organic matter, ash) of the incisor teeth that could be as-

*From the Biochemical Laboratory of Columbia University, at the College of Physicians and Surgeons, New York.

[Being an *abstract* of the three sections of the *fifth* annual report, by William J. Giles and collaborators, on investigations under the auspices of the Research Committee of the Dental Society of the State of New York, Dr. Wm. B. Dunning, chairman; and of the *first* annual report on investigations under the auspices of the Scientific Foundation and Research Commission of the National Dental Association, Dr. Weston A. Price, chairman; originally published in the *Transactions of the Dental Society of the State of New York*, 1915, pp. 161-223.]

cribed directly to the glandular treatment; although, in accord with the prevailing preponderance in body-weight of the control rats, the teeth of the control rats were somewhat heavier, in the main, than those of the "treated" animals.

The results are regarded as suggestive, not as conclusive. The experiments will be repeated and extended.

II. Studies of the influence of unbalanced diets on dentition. 1. On the general influence of dietary conditions and other nutritional factors on the development and state of the teeth.

III. Studies of the influence of unbalanced diets on dentition. 2. A chemical study of nutritive factors in the development of teeth and bones, with special reference to the influence of hydrochloric and β-hydroxybutyric acids, and the effects of dietary deficiencies of calcium and phosphorus.

SUMMARY OF GENERAL CONCLUSIONS

1. β-Hydroxybutyric acid (combined), administered with food to a young dog, to the extent of 227 gm., during a period of 180 days, produced no effect upon the appearance, rate of growth, or chemical composition of the teeth.

2. A total of 84.12 gm. of hydrochloric acid (combined), administered in food to a young dog during a period of 180 days, retarded the development of the teeth, but did not affect the chemical composition of the teeth. Two puppies, that received 20 and 16 gm., respectively, of hydrochloric acid (combined), during a period of 63 days, showed impaired development, but no differences in the chemical composition, of the teeth. No superficial deterioration of the teeth was observed, in these tests, as a result of the ingestion of either the β-hydroxybutyric acid or the hydrochloric acid.

3. A diet of meat, sugar, cracker-meal, and lard, ordinarily considered to be poor in calcium, failed to affect the development and the chemical composition of the teeth of three puppies, during a feeding period of 127 days.

4. A diet consisting of a small amount of milk, meat, sugar, cracker-meal, and lard, calculated to provide less than half the amount of phosphorus physiologically required by dogs, produced a slight degree of "demineralization" of the incisors of two puppies, during a feeding period of 149 days. At the end of this period the incisors and canines of these puppies appeared more worn at the tips than the corresponding teeth of the control animals.

5. Young rats when fed a ration providing 3 mgm. of calcium (as Ca) per animal per day, for a period of 70-85 days, exhibited loss of appetite,

stunted growth, and poor development of the whole organism. The bones and the teeth were unusually soft and fragile. "Demineralization" of both teeth and bones was very pronounced. The average difference between the ash-yield from dry teeth of the control rats and of the rats deprived of calcium was 8.5 per cent.; it was 20 per cent. in the case of the bones. There was an increase in organic matter corresponding to this decrease in mineral matter. There were losses of 2-4 per cent. of calcium, and of 2 per cent. of phosphorus, in the dry teeth. There was also a loss in the magnesium content. The composition of the ash from the teeth varied but little. The loss of calcium, phosphorus, and magnesium was more pronounced in the bones.

6. A ration providing 7 mgm. of phosphorus (as P) per animal per day, when administered to young rats for 70-90 days, led to stunted growth and to poor development of bones and teeth. The effects were not as severe, however, as they were in the cases of calcium deprivation. There was a distinct loss of mineral matter from the teeth and from the bones, the loss of calcium having been more pronounced than that of phosphorus.

7. A ration poor in magnesium, that provided only 1.2 mgm. of that element per rat per day, was without any noticeable effects, during a period of 70 days, upon the development and the composition of the teeth and bones of three young rats.

There were no definite effects on the dimensions, curvature, or weights of the incisor teeth of the rats that could be ascribed directly to the dietary treatment; although, in accord with the prevailing preponderence in body-weight of the control rats, the teeth of the control rats were somewhat heavier than those of the "treated" animals.

[*The Dental Summary*, April, 1916]

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Regular Contributions

Miller Memorial Insert.
Miller Memorial Unveiling.

GOLD CROWN IN REMOVABLE BRIDGE WORK*

By Dr. P. A. Gould, Gibsonburg, Ohio

The object of this Clinic is to show how attachments may be made to teeth to hold removable dentures in place in such a manner that they may be of the greatest service that it is possible to attain, and not cause any irritation to the teeth to which they are attached. To make an attachment that is substantial enough to stand the service that may be required of it and at the same time be built within the space occupied by the teeth in a full denture, we must first take a survey of conditions that may exist.

It is well known that all surgical operations are subject to a return of irritation by constitutional disorders that may be developed from other infections. Also that this irritation to parts that have been subjected to traumatism, or surgery, when brought under the influence of toxemia, will at times develop pathogenic bacteria that have a severe effect upon constitutional disorders.

How little we think of these physiological conditions that may be developed, when performing surgical operations such as extracting a pulp and nerve, then filling the root canals!

Scientific research has shown that too generous uses of antiseptic medicaments produce an irritation by destroying healthy tissues and hence become of no value in preventing infection.

It is an established fact that sterile blood and its products can do more to heal a wound than any dressing or treatment that the doctor may give it; this is a very important thing to consider when we have sterile blood present.

Root canals that are sterile should be allowed to heal under these conditions, the sterile blood being forced back through the foramen of the root and held there with a dessicative substance that will allow nature to heal itself and at the same time prevent and not cause any infection.

Should the operator allow the hemorrhage to continue until it stops of its own accord, a serum will work itself into the apices of the roots. This will have to be removed, or it will produce an abscess as soon as some constitutional disorder presents a medium for it to develop pyogenic micro-organisms.

A root that may have been well filled may also have like abscessed conditions produced from a mechanical irritation caused by an injury, or by being constantly irritated a little by some form of a prosthetic attachment, or an unsanitary condition.

*Clinic Ohio State Dental Society.

[*Dental Items of Interest*, 1916]

Exclusive Contributions

Sequelæ of Denta. Infections in the Maxillæ By A. Berger, D.D.S.
Successful Treatment of Apical Abscesses by Ionization. By Marcus Straussberg, D.D.S.

Orthodontia

The Advantages of Early Treatment. By Dr. Milton T. Watson.

Prosthodontia

New Method of Constructing Full Dentures. By Clyde Davis, B.S., M.D., D.D.S.

Radiodontia

"The X-Rays in Oral Surgery." By Howard R. Raper, D.D.S.

Society Papers

Commercialized Education and the "Itinerant Instructor." A Study of the Conditions Under Which the Practicing Dental Surgeon Sometimes Receives Post-Graduate Instruction. By Herbert J. Samuels, D.D.S.
Cavity Preparation for the Gold Inlay. By J. V. Conzett, D.D.S.
Peridental Anesthesia—Intra-osseous Method. By Frank L. Platt, D.D.S.

[*The Dental Outlook*, April, 1916]

Original Communications

Seelye-Whitney Bill.
Shall We Legalize the Dental Hygienist? By M. William, D.D.S.
Remarks by Dr. Harris.
Remarks by Dr. Ratner.
Remarks by Dr. Calman.

Editorial

The Whitney-Seelye Bill.
Letter to the Editor.
Resolutions on the Seelye-Whitney Bill, Adopted by the Council and Its Indorsement by the Affiliated Societies.
Resolutions on the McCue-Foley Bill, Adopted by the Council and the Affiliated Societies.

[*The Journal of the National Dental Association*, March, 1916]

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Thos. P. Hinman, D.D.S. Frontispiece.

Original Communications

Evolution of Bodily Movement of Teeth. By Carl B. Case, D.D.S.
*The Pathological Significance of Impacted and Unerupted Teeth. By Chalmers J. Lyons, D.D.Sc.

The Research Department

Legislative Department

Editorial Department

THE PATHOLOGICAL SIGNIFICANCE OF IMPACTED AND UNERUPTED TEETH*

By Chalmers J. Lyons, D.D.Sc., Ann Arbor, Mich.

The writer has observed four cases of epilepsy where there has been no return of the trouble after a period of eighteen months following the removal of the impacted third molars. Whether the impacted teeth were the whole etiological factors in these epileptic conditions, or only secondary it is difficult to state. In only one out of the four cases was any further treatment followed and in this case bromides were given, but the attending physician gives credit for the immunity from the nervous disturbance, to the removal of the impacted teeth.

It is not to be thought of for one moment that all cases of epilepsy may be benefited by the removal of impacted teeth.

Neither can other forms of extreme nervous disturbances be benefited in every case by their removal.

The writer believes, however, that impacted teeth should be considered as a possible etiological factor in the diagnosis and treatment of many of the obscure nervous diseases wherein the trifacial nerve and its many ramifications may possibly be involved.

In some cases of impacted third nature molars the acute inflammatory conditions may be of such a violent nature that the operation for their immediate removal will be contra-indicated.

*(Read before the National Dental Association.)

Theories for the solution of the cause of cysts have been advanced such as irritation from the unerupted tooth, failure in evolution of the tooth, etc., but all seem to meet with some objections. There are certain clinical facts, however, which are of vital interest to the dentist.

1st. These cysts are associated with unerupted teeth.

2nd. The vast majority of examples of this affection occur in patients under thirty years of age.

3rd. These growths occur at or shortly after the period, when the affected tooth should under ordinary circumstances be erupted.

4th. All unerupted teeth are by no means associated with cysts, but they should be held in suspicion.

(The Research Department)

A DEVELOPMENT OF PRACTICAL SUBSTITUTES FOR PLATINUM AND ITS ALLOYS, WITH SPECIAL REFERENCE TO ALLOYS OF TUNGSTEN AND MOLYBDENUM

By Frank Alfred Fahrenwald, Cleveland, Ohio

VI. SUMMARY AND CONCLUSIONS

With regard to the degree of accuracy with which temperatures could be measured in these experiments; it must be pointed out that the object was not to establish these critical points for direct transference to any commercial plant (for different types of apparatus would necessitate a determination of these conditions to suit each individual case), but to determine their existence and influence. It would also be of no avail to locate these critical ranges because every different set of apparatus and conditions would require a new standardization.

In these experiments, however, the temperatures necessary to produce a certain degree of crystallization were considered as being located with a fair degree of accuracy, in so far as this may not be qualified by the existence of working conditions which were far from ideal.

As to the measurement of forging temperatures no claim is made for more than close approximations, for this was properly not a one-man operation, and was performed by the writer with one eye to the optical pyrometer the other on the millimeter scale, one hand on the pyrometer rheostats, the other using a hammer on the upper electrode, while the heating current was controlled by one foot on a lever regulating the transformer and rheostat.

The experimental work resolved itself into three parts, each being marked by a different method of attack, necessitated by limitations encountered as the work progressed under previously adopted methods. The first part consisted of experiments on binary combinations of

those of the metals which it was feasible to consider, and the melting points of which lay within the limits of ordinary fusion methods. The results of these experiments, performed as indicated therein, lead to the conclusion that metals or alloys of metals outside of the precious-metal groups, are unsuitable as substitutes for platinum.

The gold and silver alloys of palladium have been found to be excellent substitutes for platinum in its softer forms, and while not so chemically resistant, fill all requirements where conditions are not too rigid.

The second part develops the fact that except in two respects, pure ductile tungsten, and, to a lesser degree molybdenum, meet all of the specifications of a practical substitute for platinum and its alloys. These two defects are its ease of oxidation, and the difficulty with which it can be soldered; and they have been overcome by coating with a precious metal or alloy, the resulting material being in many ways far superior to platinum or its alloys.

This material has met with instant demand, is in many cases replacing the best platinum-iridium alloys, and permits the performance of work which has been impossible with the materials hitherto available.

The third part described the theoretical and practical considerations involved in the manufacture of wrought tungsten and molybdenum, and gives results of the proper application of a similar method in the laboratory production of their alloys.

Wrought tungsten and molybdenum were produced on a laboratory scale, but no success attended the attempted production of alloys of tungsten with gold and palladium; while on the other hand, the alloys of the tungsten-molybdenum series were produced in wrought form. These operations were governed entirely by metallographic control, and their success suggests the possible application of a similar method in a treatment of such metals as iridium, tantalum, rhodium, osmium, etc., in combination with each other, or with tungsten or molybdenum, which may result in the production of alloys possessing properties far superior to those of any material now available.

[*The Dominion Dental Journal*, March, 1916]

Original Communications

*Crown and Bridge Work—Safe and Sane. By A. W. Thornton, D.D.S., L.D.S., Montreal.
President's Address—Canadian Oral Prophylactic Association. By A. J. McDonagh, D.D.S., L.D.S., Toronto.

Dental Societies

Report of Educational Committee, Canadian Oral Prophylactic Association.
Secretary-Treasurer's Report.

New Departure in Progressive Methods of Education.

Preliminary and Professional Educational Requirements of the Provincial Dental Board of Nova Scotia.

CROWN AND BRIDGE WORK—SAFE AND SANE

By A. W. Thornton, D.D.S., L.D.S., Montreal, Que.

1. Should the extent of fixed bridges be limited in extent? My opinion is that fixed bridges should be limited in extent to the regions including the cuspids and incisors and to those forms of bridges the construction of which admits of cleansing by ordinary means.

2. The question of devitalization: Is it safe? Is it sane? Is there a limit here also? If we accept Black's teaching: "A tooth from which the pulp has been removed seems never again to recover," then we are forced to the conclusion that devitalization should be limited to those cases in which the diminished efficiency of the devitalized tooth or teeth is more than compensated for by the increased efficiency of the remaining natural teeth and the appliance attached to the devitalized tooth or teeth.

If fixed bridge work is to be limited in its extent, then, naturally, the adoption of removable appliances must be extended. With the means at our disposal now of limiting the amount of foreign matter in making small partial plates with the various attachments with which you are all familiar, I am convinced that safer and saner methods of practice are now within reach of the man doing work for the ordinary people of any community. The use of easily applied materials very closely simulating the appearance of the natural gums will, I believe, give a great impetus not only to prosthetic work generally, but to safe, sane, clean, easily made, comparatively cheap removable appliances.

[*New York Medical Journal*, March 18, 1916]

PERSONNEL OF AN AMERICAN BASE HOSPITAL IN WAR TIME

The experience of some of the nations now at war should serve as a solemn warning to us to see that injured soldiers do not lose their lives or their limbs for want of competent surgeons. Adequate organization should be made in times of peace, insists the *Journal of the Michigan State Medical Society* for January, 1916. Supplies and instruments, owned by the government, should be stored in accessible locations. Units should be organized and should meet annually. Crile suggests the following unit adequate to serve a base hospital of 500 beds: Chief surgeon; five associate surgeons, each in charge of 100 beds; three assistant surgeons; orthopedic surgeon; three anesthetists; pathologist and assistant; internist; neurologist, oculist; two dentists; two röntgenologists;

secretary and record clerk; two stenographers; fifty nurses. Would it not be well for the profession of this State to take the necessary steps to organize several such units?

RECURRENT PARALYSIS OF THE FACIAL NERVE

By J. Ramsay Hunt, M.D.

The recurrent or relapsing facial palsy associated with pain in the ear and occipital region is, therefore, merely a peripheral paralysis of the seventh nerve, in which is manifested a peculiar tendency to multiple attacks or recurrences. The symptomatology corresponds in all its essentials to the more usual type in which there is but a single attack, and similar etiologic factors are also in evidence. Some emphasis may be placed on the theory of a narrow exit at the stylomastoid foramen, which was advanced by Despaigne in explanation of these recurrences, and which might predispose the nerve compression from very slight inflammatory cause. Such an anomaly might well be inherited. This, however, is only an ingenious theory, and calls for more definite pathologic confirmation. Occasionally there is a history of diabetes, so that this possibility should always be considered. Most of the cases are of infectious or refrigeration origin. In the infectious and rheumatic groups there is simply a constitutional tendency to peculiar local reactions to cold or infections, which expresses itself in terms of facial palsy, very similar to that which is observed in tonsillitis, sore throat, lumbago, sciatica and other rheumatic manifestations, with their well-known tendency to recurrences. A pathologic theory of the rheumatic or refrigeration palsies, advocated by many, is that of a perineuritis of the facial nerve similar to brachial and sciatic perineuritis of rheumatic origin. Such a lesion would be favored by the exposed situation of the nerve, any swelling of its structure within the fallopian aqueduct being immediately registered as pressure palsy, a result which would naturally be enhanced by the presence of a congentially narrow canal. This theory would explain some of the familial and hereditary types which are occasionally observed, the constitutional tendency or diathesis being also transmitted.

Facial palsy as a sequela of the migraine attack, the *facioplegic migraine* of some writers, is not a clinical entity. At the present time there are no adequate reasons for the acceptance of such a clinical type. The Rossolimo case which forms the chief support of this teaching is evidently only a recurrent facial palsy with marked sensory symptoms in a woman afflicted, with migraine, and one searches the literature in vain for examples of a true facioplegic migraine. Furthermore, the fragmentary case report of Hatchek, which is sometimes spoken of as a periodic facial palsy, as this term was used by Moebius to describe the

periodical oculomotor palsies, is an equally erroneous interpretation. The relapses in the Hatchek case, conservatively interpreted, represent nothing more than pressure or traction of the facial nerve, this giving rise to intermittence in the paralysis, an occurrence which is by no means rare as a forerunner of permanent palsy in cases of subtentorial tumors. If the facial nerve has any relation to migraine, which is so well established in the case of the ocular nerves, this relationship has yet to be demonstrated. The cases thus far cited do not furnish sufficient grounds for any such assumption. Therefore titles like "periodic facial palsy" and "facioplegic migraine" are misnomers which have crept into some of the best monographs dealing with this subject. Such terms are misleading and denote nothing more than transient intermittent facial palsy as a focal symptom of basal tumor in the one case, and the not uncommon relapsing facial palsy associated with pain in the other. It is of course self-evident that migraine and facial palsy, both of which are common affections, may be encountered in the same individual but are etiologically distinct.

[*Medical Record*, March 18, 1916]

[*Berliner Klinische Wochenschrift*, January 24, 1916]

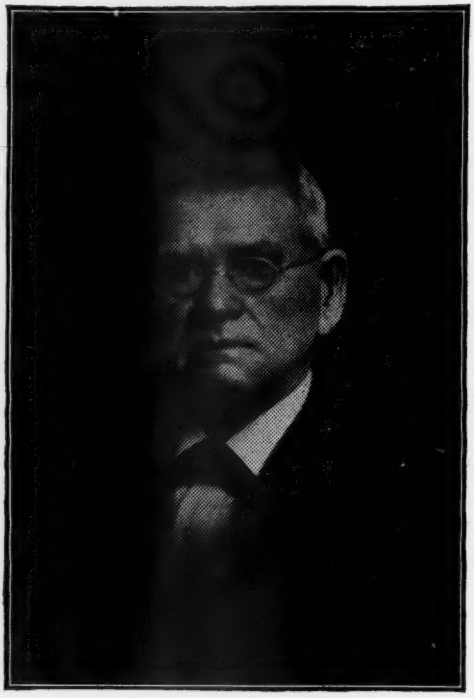
THE PALATE AND ADENOIDS

Lublinski affirms that now and then children with adenoids fail to improve after not only the nasopharynx, but the nose itself has been cleared out. That is to say, the child continues to breathe through its mouth, with all the resulting damage to ear, larynx and trachea. But the reason is obvious, for examination in such cases will reveal a high narrow palate in place of the normal broad, low one. The higher and steeper this palate, the narrower the nose, and the higher its floor. As a result air which enters such a nose enters with difficulty the nasopharynx, which is, at the same time, partly occluded below by the low placed velum palate. It is in such a nasopharynx that adenoids form, and complete the obstruction, so that only the mouth remains for breathing. It is therefore readily apparent that removal of adenoids is only a step in the direction of the restoration of natural respiration. In discussing the mechanism of this condition the author does not mention the relationship which is believed to subsist between high palate and deflected septum. For him the problem, because bound up in the development of the upper dental arch, is one for the oral surgeon, for dental orthopedics. This solution of the problem is not of recent origin—in fact, it goes back at least thirty years. The ordinary devices for spreading the upper jaw in the interest of proper alignment of the teeth also tend to overcome the high, steep palate.

DR. JACOB WESLEY GREENE

Born January 18, 1839, Died February 27, 1916

In the passing of Dr. Jacob Wesley Greene, the dental profession has lost one of its most esteemed and well known members, who for more than fifty years gave his best efforts to the public. He was born in Harrison County, near DePaw, Indiana. He worked his way through high school and college and later studied dentistry in New Albany, Indiana and Louisville, Kentucky.



When the Civil War broke out, he served as Union Soldier. Later he located in New Albany, Indiana, where he married Miss Ann Eliza Pitt. In 1866 he removed to Chillicothe, Mo.

About eighteen years ago he, with his brother, Dr. P. T. Greene, improvised the Greene System of Special Test-Method Impression taking and Plate Work.

He possessed great strength of character, a student, always ahead of his time in thought. He lived to see many of his ideas become generally popular.

BOOK REVIEWS

PROSTHETIC DENTISTRY. By JAMES HARRISON PROTHERO, Professor of Prosthetic Technic, Prosthetic Dentistry and Metallurgy, in Northwestern University Dental School, Chicago. Second Edition, Revised and enlarged, 1,200 pages, 1,400 Illustrations, Medico Dental Publishing Co., Chicago, and C. Ash & Sons, London.

The author has dealt with the essentials in four main subjects of prothesis, denture, crown and bridge and inlay constructions with sufficient elaborations to enable the beginner to acquire a theoretical and practical knowledge of them and to extend the knowledge of the average practitioner. A synopsis of color principles has been included, and illustrated, and a section on metallurgy has been incorporated. A section on the history of prosthesis has also been added, as a means of outlining the growth and practice in this field.

It is impossible, in the space of a review, to discuss more than a few points of excellence in so voluminous a work.

The first thing of especial interest which the writer notes is that the author employs Dr. Black's term "residual ridges" to indicate that portion of the edentulous jaw often spoken of as the alveolar process, even when no process remains. It seems that this term, "residual ridges," is sufficiently accurate to justify general application and use.

On page 63, in giving the 4th condition in which the use of plaster foi impressions is most strongly indicated, the author specifies,

"Fourth—in edentulous cases where the mucous and sub-mucous tissues are thick and elastic, particularly in the palatine portion of the mouth. When such a condition prevails, the tissues, if compressed uniformly, as when modelling compound is used, assert their resiliency, on pressure being relieved, which breaks the peripheral adaptation of the impression, and later on, of the denture that may be constructed when such an impression is used as a basis." The writer of this review believes that with the more recent methods of manipulating modelling compound, this indication for the use of plaster no longer holds with anything like its former force, and when modelling compound impressions of edentulous jaws are properly taken, they are more successful, on the average, than plaster impressions. The author says, on page 81, "In probably 70% of the edentulous cases presenting, compound can be used to better advantage than plaster."

Chapter 17 presents in considerable detail, illustrations and descriptive discussions of the human masticatory mechanism and imparts much useful information. Speaking of the view so extensively held, that it is not worth while to reproduce in an articulator the individual or average jaw movements, the author says: "This view is entirely unscientific as well as unwarranted in practice . . . unless the teeth are so assembled as to permit of anatomic movements other than simple occlusion at the time of constructing the denture, the habit of confining masticatory effort to the hinge movement alone becomes permanently fixed long before any perceptible change occurs in the condyle paths."

In Chapter 18 entitled, "Construction of Full Dentures, Anatomic Method," the author deals extensively with Christiansen's method of determining the forward inclination of the condyle path by protruding the jaw or by moving it laterally, the Snow Face Bow for transferring bites to the articulator and the New Century Articulator. The Gysi methods and appliances are described in the following chapter.

The author gives Dr. Williams extended credit for his work in anterior tooth forms, and Dr. Gysi credit for producing greatly improved forms of bicuspids and molars. Dr. Prothero reproduces illustrations of famous statues exemplifying different types of face and mentioning the different forms of Trubyte teeth which would be required to harmonize with them.

On pages 380 and 381, under suggestions as to the selection of colors in teeth, it is to be regretted that the author did not go into greater detail, in affording instruction in the very delicate and beautiful color scheme which nature has arranged in the natural teeth, and which has now been reproduced in artificial teeth in greater degree than ever before.

On page 393, under the heading, "Arranging and occluding the teeth," the author develops the balancing contact between the upper and lower second molars and says that, "When developed, no other contact is required on that side between that point and the opposite lateral or cuspid tooth." It is always unsafe to trust to memory, but this statement seems to the writer much less complete than the statement that Dr. Prothero made to him some years ago, when he first taught the writer the principles of articulation. If memory serves correctly, Dr. Prothero taught the writer the advantages of balancing contact from bicuspids to molars on the balancing side.

Under the heading "Flask Closing" the writer deals with the important subject of placing the right amount of vulcanite in the flask, to avoid alteration or destruction of the form of the model. He shows it is not uncommon for such force to be applied to the nuts of the flask as to exert a pressure of more than 4 tons on the plaster model. He states that no more than five pounds should be applied to the end of the wrench

handle in closing the flask, and that even this limited force yields a pressure of over 800 pounds on the cast. He offers relatively exact methods for determining the proper amount of rubber to be used for any case.

In the writer's opinion, it is to be regretted that a book which will find a place in so many libraries should not deal more extensively with the differences between articulation as exhibited in natural dentures and articulation as it must be exhibited in full artificial dentures; with the difference, in form between natural and artificial teeth; with what constitutes the depth of the bite in teeth; with the influence of the depth of the bite upon the stability and functioning power of the dentures and with the formation of unglazed cutting and grinding facets on the occlusal surfaces of the bicuspids and molars. This information would have been of interest and value to many students and practitioners of prosthetic dentistry.

The construction and practice of making gold and porcelain inlays are extensively illustrated and described.

Chapter 32, 140 pages long, presents a brief outline of metallurgy in what the author describes as an effort to point out those essential physical and chemical properties and peculiarities of metals, which, if overlooked or misunderstood by the Prosthesist, might result in mishaps of more or less serious character.

The last 100 pages is devoted to a brief history of Prosthetic Dentistry and an index which it seems should be very complete.

The book gives evidence of an enormous amount of careful and intelligent labor by the author. It is filled with good things and is a valuable contribution to the literature of the profession. It will form a helpful addition to any dentist's library.

SOCIETY NOTES

ARKANSAS.

The Arkansas State Board of Dental Examiners will hold an examination at the Marion Hotel in Little Rock, Arkansas, June 29th to July 1, 1916. Applicants must be graduates of reputable Dental Schools. Application and fee should be in the hands of the secretary two weeks before examination.—I. M. STERNBERG, Fort Smith, Ark., *Secretary.*

CALIFORNIA.

The next meeting of the Board of Dental Examiners of California will be held in San Francisco beginning June 2, 1916. This examination will be followed by one in Los Angeles, beginning June 16th.—C. A. HERRICK, San Francisco, *Secretary.*

COLORADO.

The thirtieth annual meeting of the Colorado State Dental Association will be held at the Cliff House, Manitou, June 15–17, 1916. Exhibitors will please address F. P. Wells, Exchange Bank Bldg., Colorado Springs.—EARL W. SPENCER, Pope Block, Pueblo, Colo., *Secretary.*

CONNECTICUT.

The Connecticut State Dental Association will meet in New London, Conn., at Hotel Griswold, June 13–15, 1916.—ELWYN R. BRYANT, New Haven, Conn., *Secretary.*

The Dental Commissioners of the State of Connecticut will meet at Hartford, June 22, 23 and 24, 1916, to examine applicants for license to practise dentistry, and for the transaction of any other business proper to come before them.—EDWARD EBERLE, 902 Main St., Hartford, Conn., *Recorder.*

FLORIDA.

The next meeting of the Florida State Dental Society will take place at Orlando, Fla., June 21, 1916.—M. C. IZLAR, Ocala, Fla., *Secretary.*

GEORGIA.

The forty-seventh annual meeting of the Georgia State Dental Association, will be held at Macon, Ga., June 8–10, 1916, beginning at 11 A.M. Thursday, June 8th.—M. M. FORBES, 803 Candler Bldg., Atlanta, Ga., *Secretary.*

IDAHO.

The next meeting of the Idaho State Dental Society, will be held at Boise, June, 1916.—R. J. CRUSE, Pocatello, Idaho, *Secretary.*

ILLINOIS.

The Illinois State Dental Society will hold its next meeting at Springfield, Ill., May 9–12, 1916.—HENRY L. WHIPPLE, Quincy, Ill., *Secretary.*

The Illinois State Board of Dental Examiners will hold their next examination at the Northwestern University Dental School, 31 W. Lake St., Chicago, June 15th at 9 A.M.—O. H. SEIFERT, Springfield, Ill., *Secretary.*

INDIANA.

The fifty-eighth annual meeting of the Indiana State Dental Association will be held at the Claypool Hotel, Indianapolis, May 16–18, 1916.—A. R. ROSS, Lafayette, *Secretary.*

IOWA.

The next meeting of the Iowa State Board of Dental Examiners for the examination of applicants will be held at Iowa City, Iowa, commencing Monday at nine o'clock A.M., June 5, 1916—J. A. WEST, Des Moines, Iowa, *Secretary.*

KENTUCKY

The Kentucky State Dental Society, will hold its next meeting at Louisville, July 24, 1916—W. T. FARRAR, 519 Starks Bldg., Louisville, Ky., *Secretary.*

The next meeting of the National Dental Association will be held in the 1st Regiment Armory, Louisville, Ky., July 25-28, 1916.—OTTO U. KING, Huntington, Ind., *Secretary.*

MAINE.

The fifty-first annual meeting of the Maine Dental Society will be held at the Rangeley Lake House, Rangeley, Maine, June 26–28, 1916.—I. E. PENDLETON, Lewiston, Maine, *Secretary.*

MICHIGAN.

The Michigan State Board of Dental Examiners will meet in the Dental College at Ann Arbor, June 19, 1916, at eight o'clock A.M. For application blanks apply to E. O. GILLESPIE, Stephenson, Mich., *Secretary-Treasurer.*

MISSOURI.

The next regular meeting of the Missouri State Board of Dental Examiners, for examining applicants to practise dentistry in Missouri, will be held in Jefferson City, June 12–14, 1916.—V. R. MCCUE, Cameron, Mo., *Secretary.*

MONTANA.

The Montana State Board of Dental Examiners will hold their Annual Session for examinations at Helena, Mont., July 10–13, 1916.—G. A. CHEVIGNY, 107 Clark Blk., Butte, Mont., *Secretary.*

NEBRASKA.

The Nebraska State Dental Society will hold its next meeting in Lincoln, Nebr., May 16–18, 1916.—H. E. KING, Omaha, Nebr., *Secretary.*

NEW JERSEY.

The forty-sixth annual convention of the New Jersey State Dental Society will be held at Asbury Park, N. J., on July 12, 13, 14, and 15, 1916.—JOHN C. FORSYTH, 430 East State St., Trenton, N. J., *Secretary.*

NEW YORK.

The Dental Society of the State of New York will hold its next meeting at the Hotel Ten Eyck, Albany, N. Y., May 11-13, 1916.—A. P. BURKHART, 52 Genesee St., Albany, N. Y., *Secretary.*

OHIO.

The Northern Ohio Dental Association will hold its annual session at Hotel Statler, Cleveland, June 1–3, 1916.—CLARENCE D. PECK, Sandusky, O., *Secretary.*

PENNSYLVANIA.

The fifty-third annual meeting of the Lake Erie Dental Association will be held at Hotel Bartlett, Cambridge Springs, Pa., May 18–20, 1916.—J. F. SMITH, 120 W. 18th St., Erie, Pa., *Secretary.*

The next regular examination of the Pennsylvania Board of Dental Examiners will be held in the Musical Fund Hall in Philadelphia, and the College of Pharmacy Building in Pittsburgh, on June 14–17, 1916. The practical work will be held at the Philadelphia Dental College in Philadelphia, and the University of Pittsburgh in Pittsburgh, on the first day, June 14th, the operative work at eight-thirty A.M., the prosthetic work at one-thirty P.M.—ALEXANDER H. REYNOLDS, 4630 Chester Ave., Philadelphia, Pa., *Secretary.*

RHODE ISLAND.

The next meeting of the Rhode Island State Board of Registration in Dentistry, for the examination of candidates, will be held at the State House in Providence, June 27–29, 1916, beginning each day at 9 A.M. Only graduates of a reputable Medical or Dental College are admitted to this examination.—WM. B. ROGERS, 171 Westminster St., Providence, R. I., *Secretary.*

SOUTH CAROLINA.

The forty-sixth annual meeting of the South Carolina State Dental Association will be held at Chick's Springs, So. Car., July 11–13, 1916.—ERNEST C. DYE, Greenville, So. Car., *Secretary.*

TENNESSEE.

The next meeting of the Tennessee Board of Dental Examiners will be held at Nashville, Tenn., commencing Monday at 10 A.M., June 12th, and continuing through Friday, June 16th. For full information and application blanks apply to WALTER G. HUTCHISON, 308 Eve Bldg., Nashville, Tenn., *Secretary.*

The Tennessee State Dental Association meets in Knoxville, Tenn., June 20–22, 1916.—H. C. MAXEY, 908 Exchange Bldg., Memphis, Tenn., *Secretary.*

TEXAS.

The Texas State Dental Association will hold its next meeting at Dallas, Texas, May 9–12, 1916.—W. O. TALBOT, Fort Worth, Texas, *Secretary.*

VERMONT.

The next meeting of the Vermont Board of Dental Examiners, for the examination of candidates to practise in Vermont, will be held at the Statehouse, Montpelier, June 26–28, 1916.—HARRY F. HAMILTON, Newport, Vt., *Secretary.*

WISCONSIN.

The meeting of the Wisconsin State Board of Dental Examiners will be held at the Marquette Dental College, Cor. 9th and Wells St., Milwaukee, Wis., June 14, 1916, commencing at nine o'clock.—F. A. TATE, Daniels Blk., Rice Lake, Wis., *Secretary.*

The next meeting of the Wisconsin State Dental Society will be held in Wausau, Wis., July 11–13, 1916.—THEO. L. GILBERTSON, *Secretary.*

THE FORSYTH INFIRMARY FOR CHILDREN

PERMANENT STAFF APPOINTMENTS

An examination of graduates in Dentistry (of less than three years' standing), for appointments to positions on the Permanent Staff for full and one-half time service will be held early in June at the Infirmary.

Appointments will be made for one or two years as follows:

Full time service requiring every day, 8 hours per day, with one afternoon off a week, at a salary of $1,000 per year.

One-half time service requiring 3½ hours per day either forenoon or afternoon, at a salary of $400 per year.

These appointments will be made subject to satisfying the requirements of the Massachusetts State Board of Registration in Dentistry.

Members of this staff will be entitled to the advantages of reports and clinics by experts in the various branches of dentistry from different parts of the world, in addition to the numerous regular clinics and lectures.

The operators on this staff have the advantage of the clinics and lectures of the Post Graduate School of Orthodontia.

All material and necessary operating instruments will be furnished; up-to-date apparatus including electric engines, sterile instrument trays, fountain cuspidors, compressed air and modern operating-room-type lavatories are available for use.

A diploma of service will be issued to each member of this staff who has completed this term to the satisfaction of the Trustees.

Applications for the above positions should be made not later than May 15th. Information will be gladly furnished to any one interested, also the date of the examination.

Harold DeW. Cross, D.M.D., Director, 140 The Fenway, Boston, Mass.

UNDERGRADUATE ASSISTANTS

During the months of June, July, August, and September an opportunity is offered by the Trustees of the Forsyth Dental Infirmary for Children to a limited number of undergraduate students to act as assistants in the clinics of the Infirmary. This privilege permits a student to obtain unusual clinical advantages in the various departments of the institution where Operative Dentistry, Orthodontia, Nose, and Throat, Oral Surgery, Radiography, Pathological Diagnosis, and Research Work are continually carried on.

Operators' gowns and all instruments are furnished. Over three hundred children are treated daily.

For further details apply before May 15th to the Director, Harold DeW. Cross, D.M.D., 140 The Fenway, Boston.

FUTURE EVENTS

May 11–13, 1916.—Dental Society of the State of New York, Hotel Ten Eyck, Albany, N. Y. —A. P. BURKHART, 52 Genesee St., Albany, N. Y., *Secretary.*

May 16–18, 1916.—Susquehanna Dental Association, Young Men's Hebrew Association Bldg., Scranton, Pa.—GEO. C. KNOX, 30 Dime Bank Bldg., Scranton, Pa., *Secretary.*

May 16–18, 1916.—Nebraska State Dental Society, Lincoln, Neb.—H. E. KING, Omaha, Neb., *Secretary.*

May 17–18, 1916.—Indiana State Dental Association, Claypool Hotel, Indianapolis.—A. R. Ross, Lafayette, *Secretary.*

May 18–20, 1916.—Lake Erie Dental Association, Hotel Bartlett, Cambridge Springs, Erie, Pa.—J. F. SMITH, *Secretary.*

June 1916.—Utah State Dental Society, Salt Lake City.—E. C. FAIRWEATHER, Salt Lake City, Utah, *Secretary.*

June 1–3, 1916.—Northern Ohio Dental Association, Cleveland, O.—CLARENCE D. PECK, Sandusky, O., *Secretary.*

June 5, 1916.—Iowa State Board of Dental Examiners, Iowa City, Iowa.—J. A. WEST, Des Moines, Iowa, *Secretary.*

June 5–8, 1916.—Board of Dental Examiners of the District of Columbia.—STARR PARSONS, 1309 L St., N. W., Washington, D. C., *Secretary.*

June 8–10, 1916.—Georgia State Dental Society, Macon, Ga.—M. M. FORBES, Candler Bldg., Atlanta, Ga., *Secretary.*

June 12, 1916.—Tennessee Board of Dental Examiners, Nashville, Tenn.—WALTER G. HUTCHISON, 308 Eve Bldg., Nashville, Tenn., *Secretary.*

June 12–14, 1916.—Missouri State Board of Dental Examiners, Jefferson City.—V. R. MCCUE, Cameron, Mo., *Secretary.*

June 12–17, 1916.—Indiana Board of Examiners Indianapolis, Ind.—FRED J. PROW, Bloomington, Ind., *Secretary.*

June 13–15, 1916.—Connecticut State Dental Association, Hotel Griswold, New London, Conn.—ELWYN R. BRYANT, New Haven, Conn., *Secretary.*

June 14, 1916.—South Carolina State Board of Dental Examiners at Jefferson Hotel, Columbia, S. C.—R. L. SPENCER, Bennettsville, S. C., *Secretary.*

June 15, 1916.—Illinois State Board of Dental Examiners, Northwestern University Dental School, 31 W. Lake St., Chicago.—O. H. SEIFERT, Springfield, Ill., *Secretary.*

June 15–16, 1916.—Thirtieth annual meeting of the Colorado State Dental Association, Cliff House, Manitou. Exhibitors will please address Dr. F. P. Wells, Exchange Bank Bldg., Colorado Springs.—EARL W. SPENCER, Pope Block, Pueblo, Colo., *Secretary.*

June 20–22, 1916.—Tennessee State Dental Association, Knoxville, Tenn.—H. C. MAXEY, Memphis, Tenn., *Secretary.*

June 20–22, 1916.—New Hampshire Dental Society, Lake Sunapee, Zoo-Nipi Park Lodge, Lisbon, N. H.—J. E. COLLINS, *Chairman Exhibit Committee.*

June 21, 1916.—Florida State Dental Society, Orlando, Fla.—M. C. IZLAR, *Secretary.*

June 22–24, 1916.—Dental Commissioners of the State of Connecticut, Hartford, to examine applicants for license to practise dentistry.—EDWARD EBERLE, *Recorder.*

June 26–28, 1916.—The fifty-first annual meeting of the Maine Dental Society, Rangeley Lake House, Rangeley, Maine.—I. E. PENDLETON, Lewiston, Maine., *Secretary.*

June 26, 1916.—North Carolina State Board of Dental Examiners, Battery Park Hotel, Asheville, N. C.—F. L. HUNT, Asheville, *Secretary.*

June 27–29, 1916.—Pennsylvania State Dental Society, Pittsburgh, Pa.—LUTHER M. WEAVER, 103 Woodland Ave., Philadelphia, Pa., *Secretary.*

June 27–29, 1916.—Rhode Island State Board of Registration in Dentistry, State House, Providence.—WM. B. ROGERS, 171 Westminster St., Providence, R. I., *Secretary.*

June 28–30, 1916.—North Carolina State Dental Society, Asheville, N. C.—R. M. SQUIRES, Wake Forest, N. C., *Secretary.*

June 29–July 1st, 1916.—Maine Board of Dental Examiners.—HAROLD L. EMMONS, Masonic Bldg., Saco, Me., *Secretary.*

June 29–July 1, 1916.—Arkansas State Board of Dental Examiners, Marion Hotel, Little Rock, Arkansas.—I. M. STERNBERG, Fort Smith, Ark., *Secretary.*

July 10–13, 1916.—Montana State Board of Dental Examiners, Annual Session for examinations at Helena, Mont.—G. A. CHEVIGNY, 107 Clark Blk., Butte, Mont., *Secretary.*

July 11–13, 1916.—South Carolina State Dental Association, Chick's Springs, S. C.—ERNEST C. DYE, Greenville, S. C., *Secretary.*

July 11–13, 1916.—Wisconsin State Dental Society Meeting, Wausau.—THEODORE L. GILBERTSON, *Secretary.*

July 12–15, 1916.—New Jersey State Dental Society, Asbury Park, N. J.,—JOHN C. FORSYTH, Trenton, N. J., *Secretary.*

July 20–22, 1916.—American Society of Orthodontists, Pittsburgh, Pa. Address communications to F. M. Casto, 520 Rose Bldg., Cleveland, O.

July 24, 1916.—Kentucky State Dental Society, Louisville, Ky.—W. T. FARRAR, 519 Starks Bldg., Louisville, *Secretary.*

July 25–28, 1916.—National Dental Association, 1st Regiment Armory, Louisville, Ky.—OTTO U. KING, Huntington, Ind., *Secretary.*

October 9–15, 1916.—Arizona Board of Dental Examiners, Phœnix, Ariz.—EUGENE MCGUIRE, 302 Noll Bldg., Phœnix, *Secretary.*

October 18–20, 1916.—Virginia State Dental Association, Richmond, Va.—C. B. GIFFORD, Norfolk, Va., *Corresponding Secretary.*

January 23–25, 1917.—American Institute of Dental Teachers, Philadelphia, Pa.—ABRAM HOFFMAN, 529 Franklin St., Buffalo, N. Y., *Secretary-Treasurer.*

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF THE DENTAL DIGEST, APRIL 1, 1916, PUBLISHED MONTHLY AT NEW YORK, N. Y., REQUIRED BY THE ACT OF AUGUST 24, 1912

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THE DENTISTS' SUPPLY COMPANY
JOHN R. SHEPPARD, *Sec'y & Treas.*

Sworn and subscribed before me this 29th day of March, 1916

[SEAL] HERBERT V. DIKE,
Notary Public New York County No. 836
Register's No. 6117

My commission expires March 30, 1916.